ExactApply™ Nozzle Control System (North American Edition)

JOHN DEERE

OPERATOR'S MANUAL

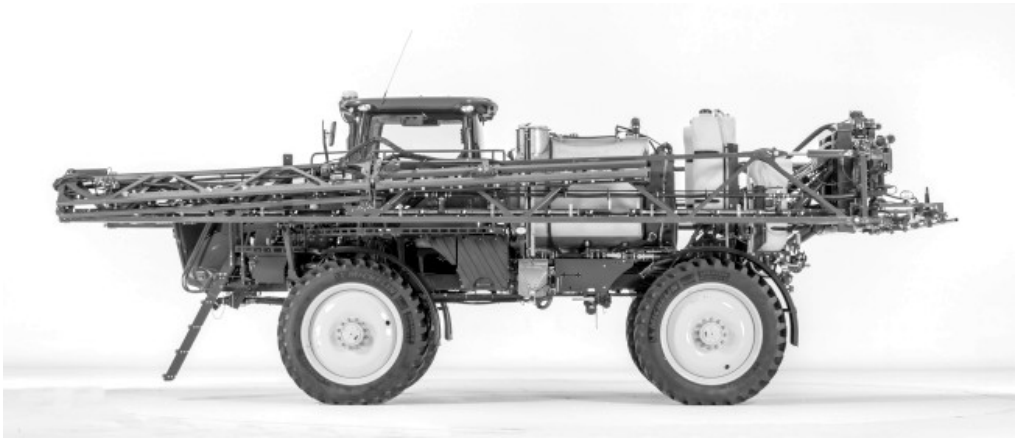
ExactApply™ Nozzle Control System

OMKK29264 ISSUE F1 (ENGLISH)

John Deere Des Moines Works
North American
PRINTED IN U.S.A.

Introduction

Foreword



N103723—UN—08MAY13

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 or statement 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. Installing unauthorized dry spreader box, or modifying John Deere authorized box to exceed design weight limitations will also void warranty.

THIS SELF-PROPELLED SPRAYER/SPREADER has been specifically constructed for the application of crop protection chemicals and liquid / dry fertilizers in ground cultivation and agriculture (”Intended Use”). The application of crop protection chemicals and liquid / dry fertilizers must be done according to the manufacturers’ instruction and legal user regulations. Intended Use also implies the observance of all user and maintenance instructions prescribed by the manufacturer. Any other use is regarded as noncompliant with its purpose including:

- improper use of agrochemicals (herbicides, fungicides, insecticides, growth regulators) and liquid fertilizers
- R4030 and R4038 when equipped with dry spreader box are not intended for the spreading of agricultural limestone
- noncompliance with instructions issued by the manufacturers of fertilizers and crop protection chemicals
- noncompliance with legal requirements applicable to the use of fertilizers and crop protection chemicals including their combination with other chemicals

THIS SELF-PROPELLED SPRAYER/SPREADER MUST ONLY be used and serviced by authorized persons who are informed about the hazards and correct operation of the machine. The relevant safety regulations and all other generally accepted safety, technical, medical and traffic instructions must be observed.

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

If you are not the original owner of this machine, it is in your interest to contact your local John Deere dealer to inform them of this unit's serial number. This will help

John Deere notify you of any issues or product improvements.

CS12167,00002E6-19-11JUN13

Emissions Performance and Tampering

Operation and Maintenance

The engine, including the emissions control system, shall be operated, used, and maintained in accordance with the instructions provided in this manual to maintain the emissions performance of the engine within the requirements applicable to the engine's category/ certification.

Tampering

No deliberate tampering with or misuse of the engine emissions control system shall take place; in particular with regard to deactivating or not maintaining an exhaust gas recirculation (EGR) or a DEF dosing system. Tampering with an engine’s emissions control system will void the European Union (EU) type approval and applicable emissions-related warranties.

DX,EMISSIONS,PERFORM-19-12JAN18

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Continued on next page

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

Recognize Safety Information

T81389—UN—28JUN13

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

Follow recommended precautions and safe operating practices.

DX,ALERT-19-29SEP98

Understand Signal Words

TS187—19—30SEP88

DANGER; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

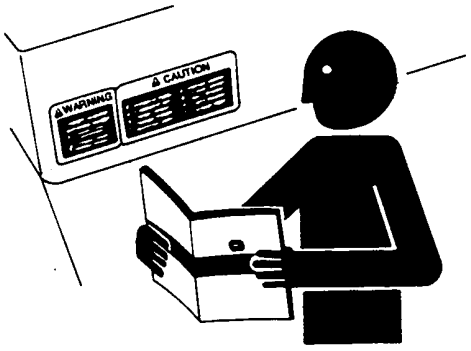
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION; The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards. DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.

DX,SIGNAL-19-05OCT16

Follow Safety Instructions



TS201—UN—15APR13

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.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

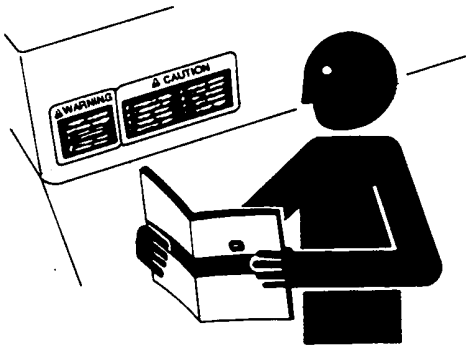
Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

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

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

DX,READ-19-16JUN09

Spanish Safety Signs and Operator's Manual

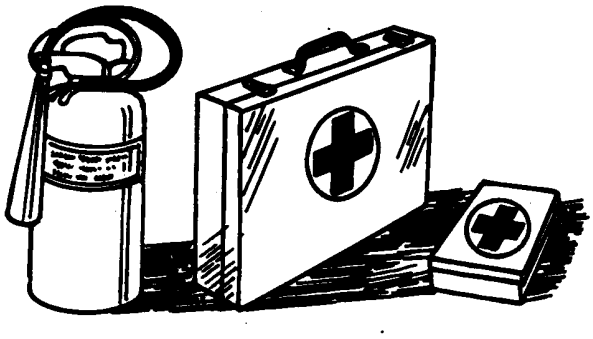


TS201—UN—15APR13

Spanish versions of the operator's manual and safety signs are available for this machine through authorized John Deere dealers. See your John Deere dealer.

OUO6075,0000145-19-22MAY08

Prepare for Emergencies



TS291—UN—15APR13

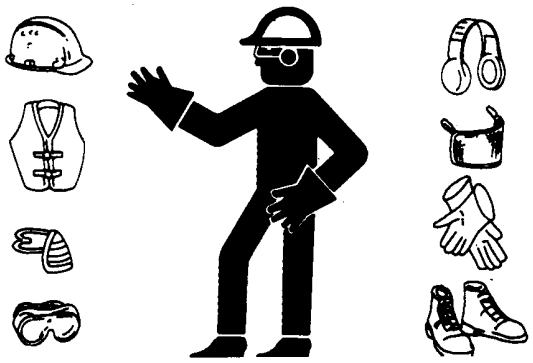
Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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

DX,FIRE2-19-03MAR93

Wear Protective Clothing



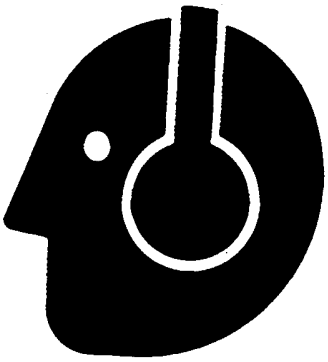
TS206—UN—15APR13

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

Protect Against Noise



TS207—UN—23AUG88

There are many variables that affect the sound level range, including machine configuration, condition and maintenance level of the machine, ground surface, operating environmental, duty cycles, ambient noise, and attachments.

Exposure to loud noise can cause impairment or loss of hearing.

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

DX,NOISE-19-03OCT17

Practice Safe Maintenance

TS218—UN—23AUG88

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 away from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

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

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

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

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

Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.

DX,SERV-19-28FEB17

Handle Electronic Components and Brackets Safely

TS249—UN—23AUG88

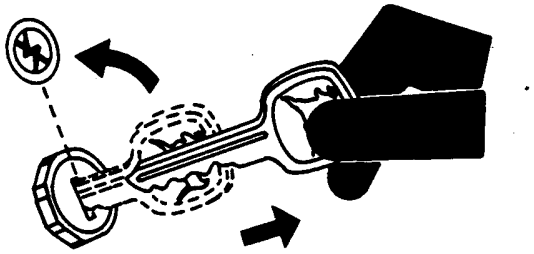
Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.

If installing or servicing a RTK base station on a tower or other tall structure, use a certified climber.

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform.

DX,WW,RECEIVER-19-24AUG10

Park Machine Safely



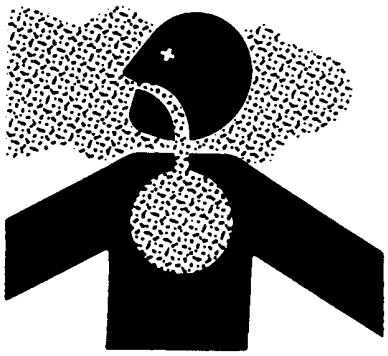
TS230—UN—24MAY89

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.

DX,PARK-19-04JUN90

Remove Paint Before Welding or Heating



TS220—UN—15APR13

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

DX,PAINT-19-24JUL02

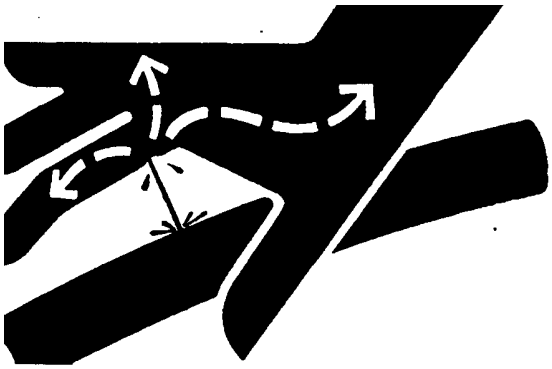
Avoid Heating Near Pressurized Fluid Lines

TS953—UN—15MAY90

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

DX,TORCH-19-10DEC04

Avoid High-Pressure Fluids



X9811—UN—23AUG88

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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

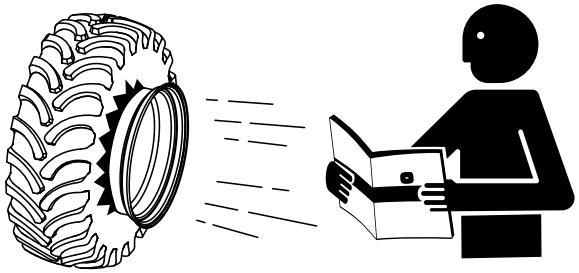
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

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 in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

DX,FLUID-19-12OCT11

Follow Tire Recommendations



H111235—UN—13MAY14

Keep your machine in proper working order.

Use only prescribed tire sizes with correct ratings and inflate to the pressure specified in this manual.

Use of other than prescribed tires may decrease stability, affect steering, result in premature tire failure, or cause other durability or safety issues.

DX,TIRE,INFO-19-19MAY14

Service Tires Safely

TS211—UN—15APR13

CAUTION: 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.

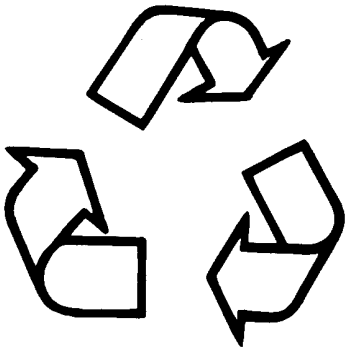
Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

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,RIM1-19-27OCT08

Decommissioning — Proper Recycling and Disposal of Fluids and Components



TS1133—UN—15APR13

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

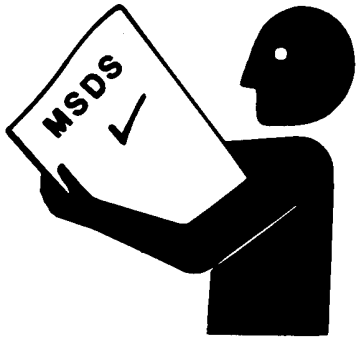
- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers

when draining fluids. Do not use food or beverage containers.

- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid); filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.

DX,DRAIN-19-01JUN15

Handle Chemical Products Safely



TS1132—UN—15APR13

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

Service Spray Equipment Safely

CAUTION: Spray solutions or vapors may be extremely dangerous. Treat all spray chemicals, solutions, or solution residues with great caution. DO NOT take chances. When in doubt, proceed as though contamination is present.

Before performing any service activity:

- Wear appropriate personal protective equipment (see Handle Agricultural Chemicals Safely in this section)
- Clean vehicle (see Clean Vehicle of Hazardous Chemicals, Including Pesticide in this section)
- Drain Solution Tank (see Draining Solution Tank in the Wet System section)
- Rinse wet system (see Operate Rinse System (Rinsing Solution Tank and Boom) or Using Load Station Rinse in the Wet System section)

OUO6092,00004DD-19-07FEB11

Service Spray System Safely

TS281—UN—15APR13

CAUTION: Spray system is under pressure. Before servicing spray system, conduct boom pressure relief function to relieve system pressure.

CS12167,00008E4-19-06JAN17

Use Proper Tools

TS779—UN—08NOV89

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.

DX,REPAIR-19-17FEB99

Work In Ventilated Area

TS220—UN—15APR13

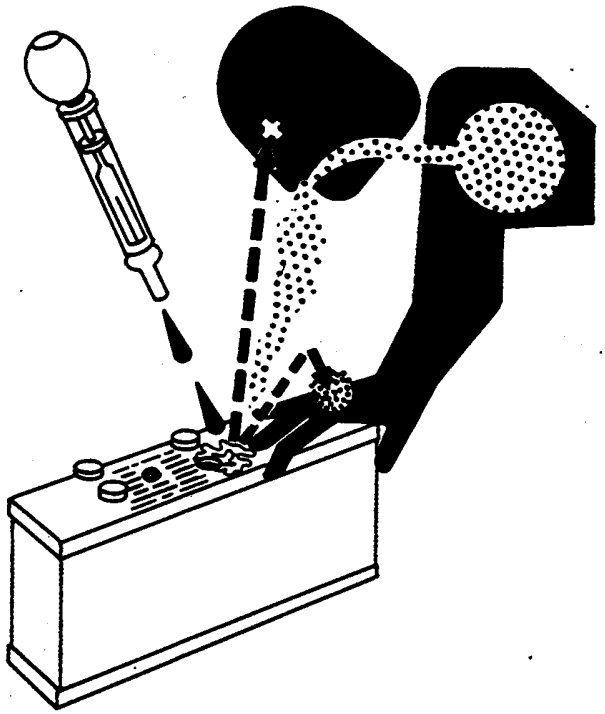
Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

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

DX,AIR-19-17FEB99

Handling Batteries Safely

TS204—UN—15APR13



TS203—UN—23AUG88

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

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

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

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

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves

- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.

If acid is spilled on skin or in eyes:

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

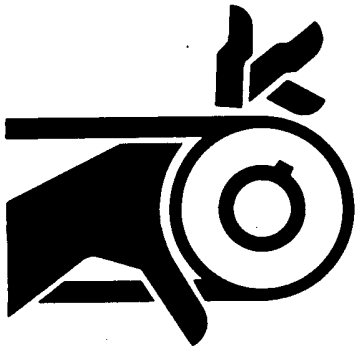
If acid is swallowed:

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

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

DX,WW,BATTERIES-19-02DEC10

Service Drive Belts Safely



TS285—UN—23AUG88

When servicing drive belts always observe these precautions:

- Avoid serious injury from hand or arm entanglement. Never attempt to clean, check or adjust belts while the machine is running. Always shut off the engine, set the parking brake and remove the key.
- Do not attempt to clean belts with flammable cleaning solvents.

OUO6043,00015E3-19-24MAY04

Do Not Open High-Pressure Fuel System

TS1343—UN—18MAR92

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail (HPCR) fuel system.

Only technicians familiar with this type of system can perform repairs. (See your John Deere dealer.)

DX,WW,HPCR1-19-07JAN03

Service Cooling System Safely

TS281—UN—15APR13

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

Shut off engine, set park brake, and remove key.

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

NEVER remove surge tank cap when coolant or engine is hot. Wait until engine coolant is cool to remove cap.

SLOWLY loosen cap to relieve pressure before removing completely.

Add coolant only when engine is shut off.

OUO6092,000026F-19-11FEB14

Service Accumulator Systems Safely

TS281—UN—15APR13

Escaping fluid or gas from pressurized hydraulic accumulator systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

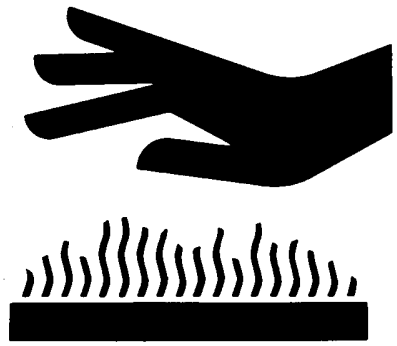
Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.

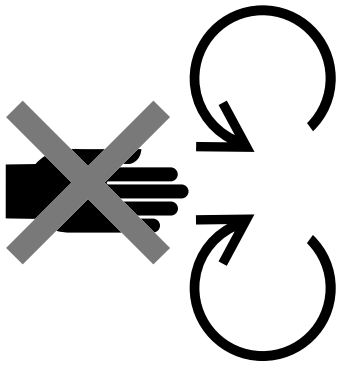
DX,WW,ACCLA-19-15APR03

Clean Exhaust Filter Safely

TS227—UN—15APR13



TS271—UN—23AUG88



TS1693—UN—09DEC09

TS1695—UN—07DEC09

During exhaust filter cleaning operations, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

Keep machine away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases or components. Avoid potential fire or explosion hazards from flammable materials and vapors near the exhaust. Keep exhaust outlet away from people and anything that can melt, burn, or explode.

Closely monitor machine and surrounding area for smoldering debris during and after exhaust filter cleaning.

Adding fuel while an engine is running can create a fire or explosion hazard. Always stop engine before refueling machine and clean up any spilled fuel.

Always make sure that engine is stopped while hauling machine on a truck or trailer.

Contact with exhaust components while still hot can result in serious personal injury.

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

- Only engage power-driven parts required by service procedure
- Ensure that other people are clear of operator station and machine

Keep hands, feet, and clothing away from power-driven parts.

Always disable movement (neutral), set the parking brake or mechanism and disconnect power to attachments or tools before leaving the operator's station.

Shut off engine and remove key (if equipped) before leaving the machine unattended.

DX,EXHAUST,FILTER-19-12JAN11

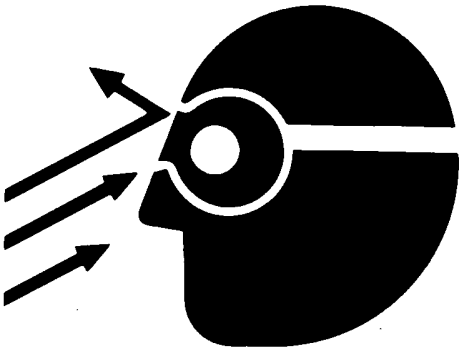
Exhaust Filter Ash Handling and Disposal

CAUTION: Under federal, state and/or local laws or regulations, exhaust filter ash may be classified as a hazardous waste. Hazardous waste must be disposed of in accordance with all applicable federal, state, and local laws or regulations governing hazardous waste disposal. Only a qualified service provider should remove ash from the exhaust filter. Personal protective equipment and clothing, maintained in a sanitary and reliable condition, should be used when handling and cleaning exhaust filter. See your authorized dealer for exhaust filter handling and disposal.

OUO6092,00003D1-19-16AUG10

Using Compressed Air For Cleaning

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



TS266—UN—23AUG88
AG,OUO6043,83-19-28JUL99

Working Area

The working area is defined and required as follows:

- an area of 1 meter around the machine for preparation of the spraying liquid (filling work) and cleaning of the spraying apparatus
- the seat on the machine from where the crop protection work is carried out

Danger zones are taken to mean:

- the working area of the operator in which preparation of the spraying liquid/dry application and cleaning of the sprayer takes place
- the "maneuvering zone" of the components of the sprayer, and in particular a 1 meter zone around the machine as a whole and the area required to fold out the spray booms or spread pattern area

OUO6092,000094F-19-04MAR15

Operate Safely

Always check general operating safety of the machine before using.

Before operating machine always check immediate vicinity of the machine for people and obstructions. Ensure adequate visibility.

Operate vehicle only when all guards are fitted and in their correct position.

DO NOT start engine with multi-function 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.

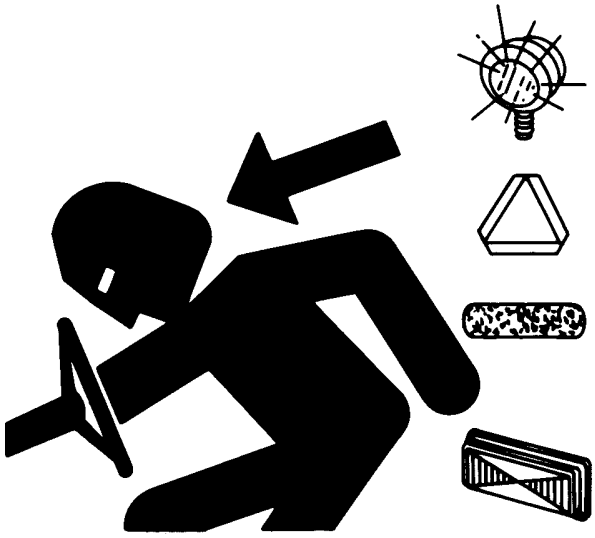
Always shut engine off when leaving machine. Remove key when leaving machine unattended. Park brake engages when engine is turned off regardless of multi-function lever position.

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.

OUO6092,0000C00-19-31JAN17

Use Safety Lights and Devices



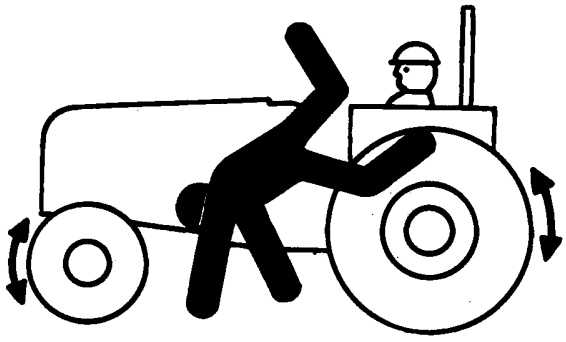
TS951—UN—12APR90

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

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

DX,FLASH-19-07JUL99

Keep Riders Off Machine



TS290—UN—23AUG88

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.

DX,RIDER-19-03MAR93

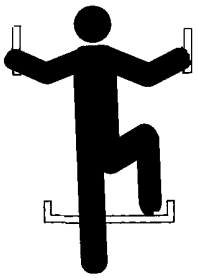
Instructional Seat

TS1730—UN—24MAY13

The instructional seat, if so equipped, has been provided only for training operators or diagnosing machine problems.

DX,SEAT,NA-19-22AUG13

Use Steps and Handholds Correctly



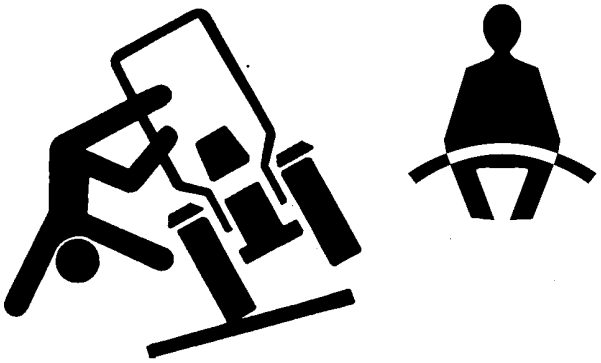
T133468—UN—15APR13

Prevent falls by facing the machine when getting on and off. Maintain 3-point contact with steps, handholds, and handrails.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.

DX,WW,MOUNT-19-12OCT11

Use Seat Belt Properly



TS1729—UN—24MAY13

Avoid crushing injury or death during rollover.

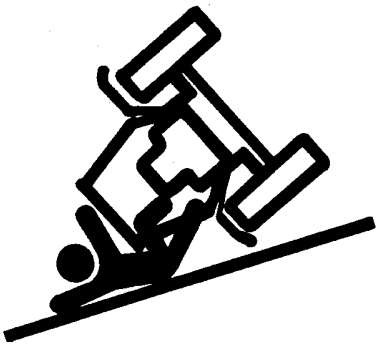
- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.

OUO6092,00009E7-19-26OCT15

Use Caution On Hillsides



RW13093—UN—07DEC88

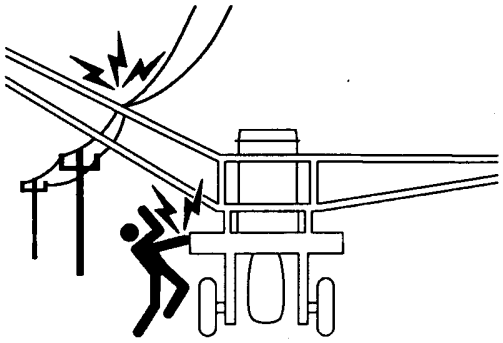
Avoid holes, ditches, and obstructions which may cause sprayer roll-over, especially on hillsides. Avoid sharp turns on hills.

Never drive near the edge of a gully or steep embankment.

Stay off slopes that are too steep for operation.

OUO6092,0000F99-19-28JUN07

Transport and Operate Safely



N44191—UN—27APR92

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, boom operating height and boom folding height of your machine.

Perform a complete assessment of the field before performing any spraying operations to decide the best working method and boom folding/unfolding operations.

Stop slowly to avoid “nose diving”.

Keep SMV emblem and reflectors clean and in place.

Do not exceed maximum transport speed specified in the operator manual.

Reduce speeds for icy, wet, graveled or soft roadway surfaces.

Check and follow local regulations for equipment size, lighting and marking before driving on public roadways.

KB78086,0000B62-19-17NOV11

Transporting Machine Using Trailer

CAUTION: Avoid collisions. Before transporting on a public roadway check and follow local regulations regarding size limits, the use of lights, flags, signs, pilot vehicles, and other requirements for transporting loads using trailer.

KB78086,0000B63-19-17NOV11

Prevent Machine Runaway

TS177—UN—11JAN89

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

Handle Fuel Safely—Avoid Fires

TS202—UN—23AUG88

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.

Use only an approved fuel container for transporting flammable liquids.

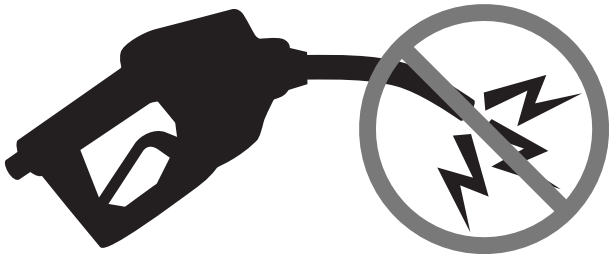
Never fill fuel container in pickup truck with plastic bed liner. Always place fuel container on ground before refueling. Touch fuel container with fuel dispenser nozzle before removing can lid. Keep fuel dispenser nozzle in contact with fuel container inlet when filling.

Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.

DX,FIRE1-19-12OCT11

Avoid Static Electricity Risk When Refueling

RG22142—UN—17MAR14



RG21992—UN—21AUG13

The removal of sulfur and other compounds in Ultra-Low Sulfur Diesel (ULSD) fuel decreases its conductivity and increases its ability to store a static charge.

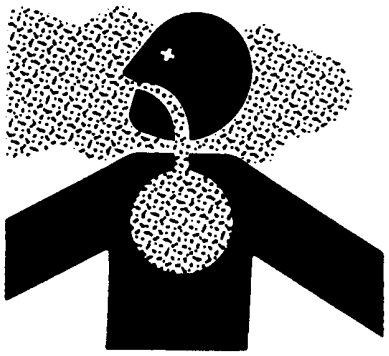
Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion.

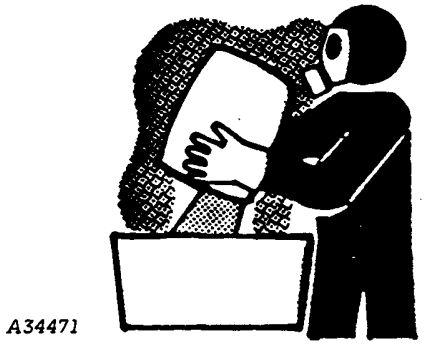
Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

DX,FUEL,STATIC,ELEC-19-12JUL13

Handle Agricultural Chemicals Safely



TS220—UN—15APR13



A34471—UN—11OCT88

Chemicals used in agricultural applications such as fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers can be harmful to your health or the environment if not used carefully.

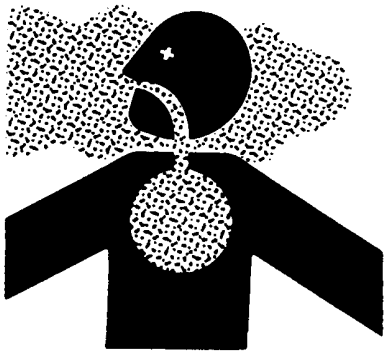
Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. In the absence of manufacturer's instructions, follow these general guidelines:
  - Chemicals labeled **'Danger'**: Most toxic. Generally require use of goggles, respirator, gloves, and skin protection.
  - Chemicals labeled **'Warning'**: Less toxic. Generally require use of goggles, gloves, and skin protections.
  - Chemicals labeled **'Caution'**: Least toxic. Generally require use of gloves and skin protection.
- Avoid inhaling spray or dusts.
- Always have soap, water, and towel available when working with chemicals. If chemical contacts skin, hands, or face, wash immediately with soap and water. If chemical gets into eyes, flush immediately with water.
- Wash hands and face after using chemicals and before eating, drinking, smoking, or urination.
- Do not smoke or eat while applying chemicals.
- After handling chemicals, always bathe or shower and change clothes. Wash clothing before wearing again.
- Seek medical attention immediately if illness occurs during or shortly after use of checmials.
- Keep chemicals in original containers. Do not transfer chemicals to unmarked containers or to containers used for food or drink.
- Store chemicals in a secure, locked area way from human or livestock food. Keep children away.
- Always dispose of containers properly. Triple rinse empty containers and puncture or crush containers and dispose of properly.

DX,WW,CHEM01-19-05APR04

Avoid Exposure To Chemicals



TS220—UN—15APR13

TS272—UN—23AUG88

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

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

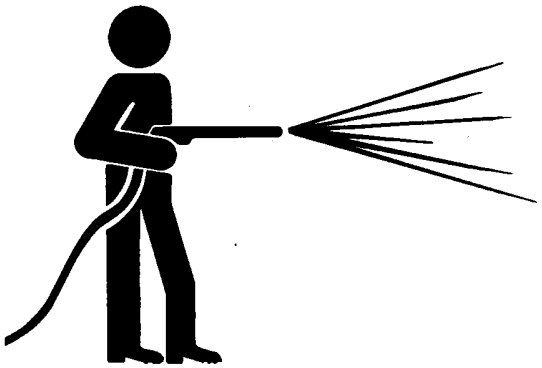
To reduce risk of chemical exposure:

- Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer’s label

- Allow only trained, certified applicators to apply chemicals
- Always close the windows and doors during application
- Verify that John Deere activated carbon filters, or appropriate substitutes, are installed at all times (see Checking and Replacing Cab Air Filters in the Cab and Air Conditioning section)
- 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
  - U.S. Environmental Protection Agency (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 reentering cab, remove personal protective equipment used to handle chemicals, including pesticides, and store equipment in accordance with EPA guidelines to prevent contaminating cab

CS12167,000073C-19-02APR15

Clean Vehicle of Hazardous Chemicals, Including Pesticides



T6642EJ—UN—18OCT88

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.

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

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.

OUO6092,000081B-19-18JAN21

Non-Permissible Use

Pay attention to the following applications for which the machine is NOT SUITABLE:

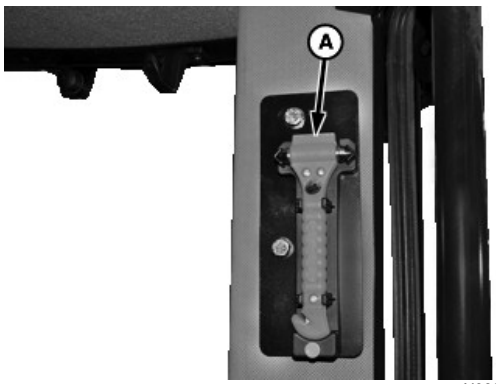
Spraying or atomization of substances other than crop protection chemicals and/or liquid fertilizers.

Use of the tank as a storage medium for substances not intended for crop protection or fertilization purposes.

CAUTION: Working on an uncleaned machine poses unnecessary danger and is therefore forbidden.

WZ00232,0000066-19-28AUG07

Emergency Exit



N93801—UN—15AUG11

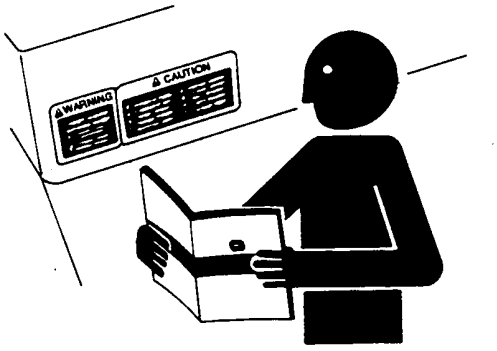
A—Hammer

CAUTION: Cover eyes, face and uncovered skin from jagged or broken glass when using break glass hammer.

In an emergency, exit the cab through the entrance door when possible. In the event an exit cannot be achieved via the entrance door, a hammer (A) is fitted in the cab that can be used to break a window to use as an exit.

OUO6092,0000641-19-29SEP11

Replace Safety Signs



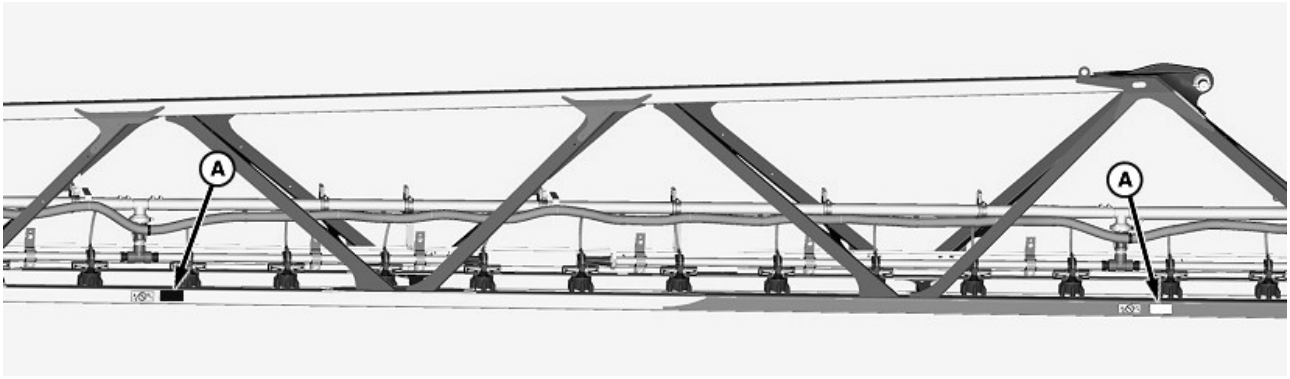
TS201—UN—15APR13

Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

DX,SIGNS-19-18AUG09

Safety Signs



N125859—UN—26SEP16

⚠ CAUTION

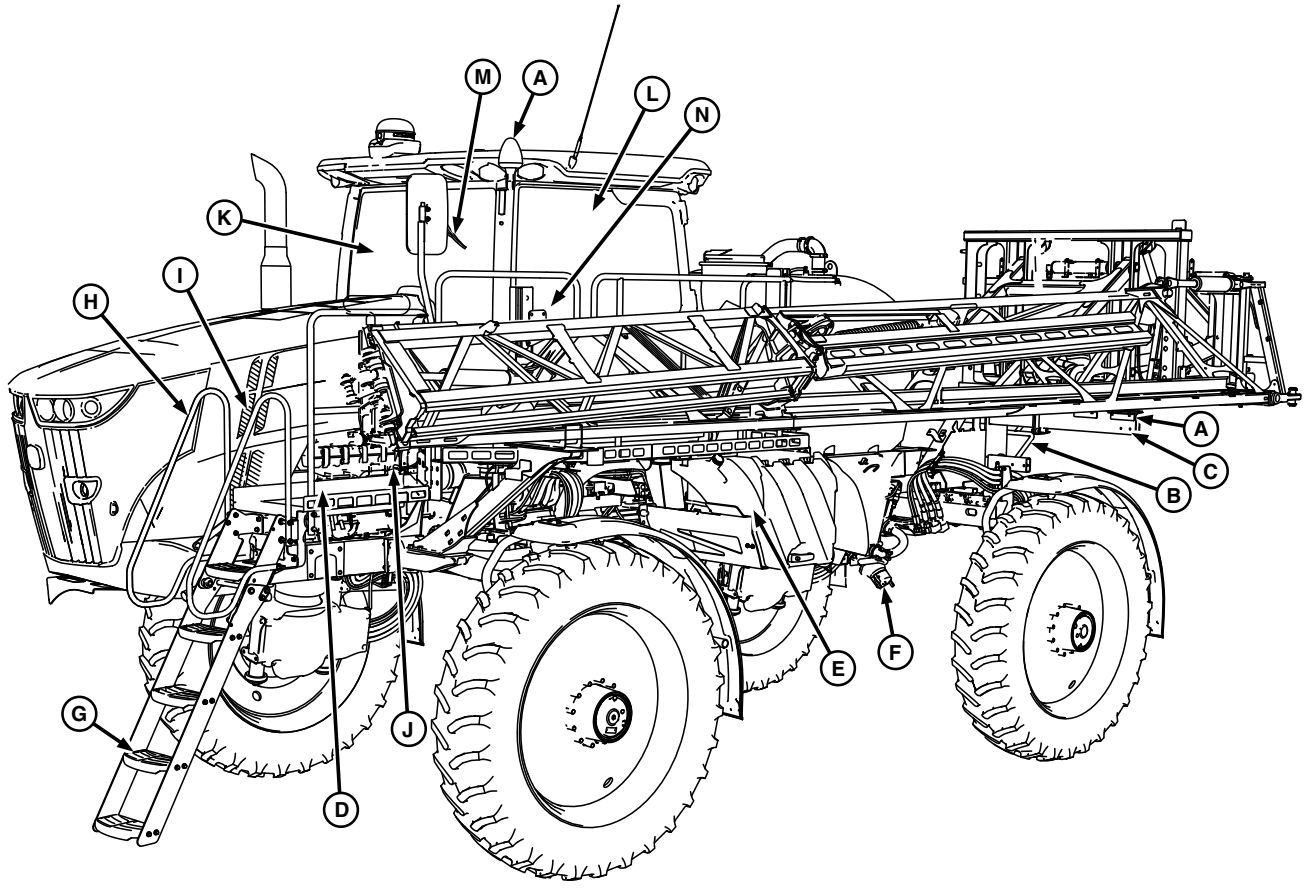
Spray system is under pressure. Before servicing, conduct boom pressure relief function to relieve system pressure.

SSKK39804—19—30MAR21

Decal A

CS12167,00009F4-19-27MAR17

Safety Features



N98807—UN—02JUL12

A—FRONT AND REAR HAZARD LIGHTS—Alerts oncoming and following traffic of your presence on roads.
B—SMV EMBLEM—Alerts following traffic of your presence on roads.
C—REFLECTORS ON BOOM—Alerts following traffic of your presence on roads.
D—SLIP RESISTANT SURFACES—Helps prevent slippage when walking on platform.
E—CLEAN WATER TANK—Provides a supply of clean water for in-field cleaning and emergency situations when working with chemicals.
F—GROUND LEVEL FILLING—Allows operator to add chemicals at ground level which helps prevent spilling or splattering.
G—DIVOTTED STEPS AND PLATFORMS—Helps prevent slipping when on platform or ladders, also diminishes dirt and mud buildup.
H—HAND RAILS—Gives support when climbing onto machine or walking on platforms.
I—FAN GUARDING—Protection from Engine Fan.
J—STARTER SOLENOID SHIELDING—For bypass start prevention.
K—EMERGENCY EXIT—Exit from right-hand side of cab if necessary.
L—TRACTOR STYLE CAB WITH SEAT BELT— For operator comfort.
M—WINDSHIELD WIPERS AND LARGE REARVIEW MIRRORS—For clear view of surroundings.
N—AUTOMATIC PARK—Shifts automatically into park when machine stops.

NOTE: Right-hand side emergency exit (K) is available using the glass hammer located on left-hand rear cab post.

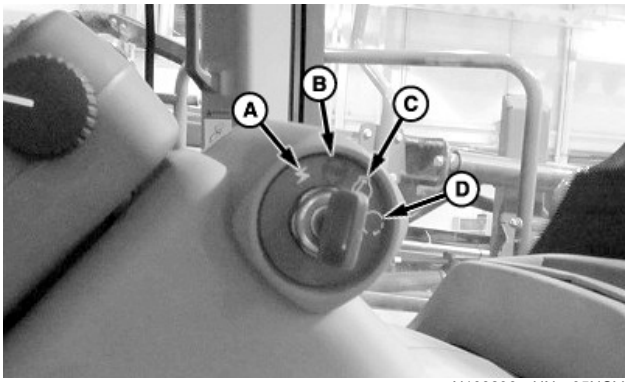
In addition to the safety features described here, other components and systems, safety signs on the machine, safety messages in the Operator's Manual and elsewhere, as well as the care and concern of a capable operator, contribute to the safety of operators and others nearby.

BN55050,000028A-19-13JUN18

Key Switch

CAUTION: Sound horn before starting engine to clear people away from the machine.

To avoid the possibility of personnel injury or death, start ONLY from the operator seat. Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuit is bypassed.



N108296—UN—05NOV13

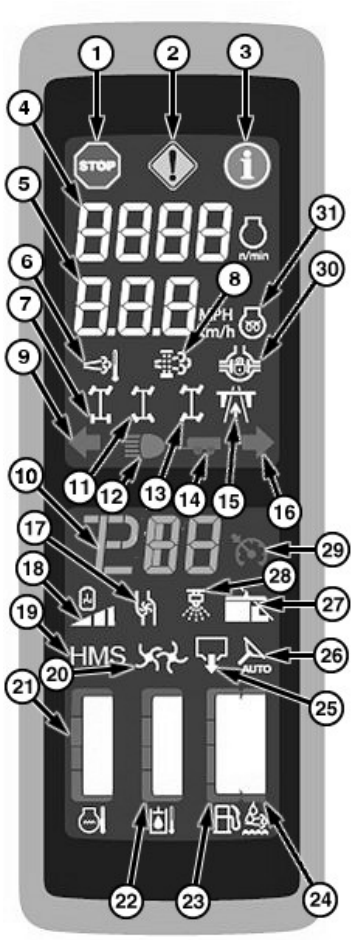
A—Accessories Position
B—Off Position
C—Accessory/Run Position
D—Start Position

Key switch is located on the right-hand side of the steering column and has four positions:

- Accessory position (A) allows accessories such as radio and windshield wiper to operate.
- Off position (B) shuts off engine and all accessory functions.
- Accessory/Run position (C) allows all accessories to operate and engine to run once it has been started.
- Start position (D) is a momentary switch position that cranks the engine. Once the engine starts and the switch is released, it will return to accessory/run position. (See Starting The Engine in this section for important details on starting your machine.)

CS12167,00004B9-19-05NOV13

Primary Display Unit (PDU)



N100183—UN—21SEP12

Primary Display Unit

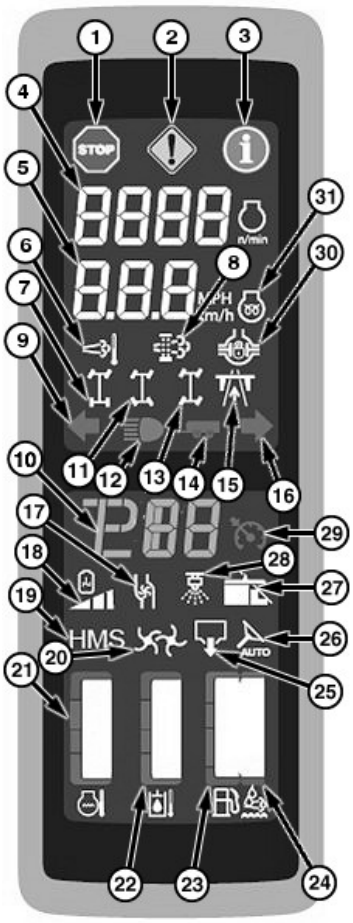
1—Stop Indicator Lamp
2—Warning Indicator Lamp
3—Information Indicator
4—Tachometer (Engine RPM) Indicator
5—Vehicle Speed Indicator
6—High Exhaust System Temperature (HEST) Indicator
7—Two-Wheel Steer Indicator (If Equipped)
8—Exhaust Filter Indicator
9—Left Turn Indicator
10—Transmission Speed Indicator
11—Four-Wheel Steer Indicator (If Equipped)
12—High Beam Indicator
13—Crab Steer Indicator (If Equipped)
14—Trailer Light Indicator (If Equipped)
15—Transport Lock
16—Right Turn Indicator
17—Solution Pump
18—Agitation Level Indicator
19—Headland Management System (If Equipped)
20—Dry Spreader Spinners
21—Engine Coolant Temperature Gauge
22—Hydraulic Oil Temperature Gauge
23—Fuel Level Gauge
24—Diesel Exhaust Fluid (DEF) Level Gauge
25—Dry Spreader - Master On
26—AutoTrac™ Indicator
27—Section Control Indicator (If Equipped)
28—Spray - Master On

AutoTrac is a trademark of Deere & Company

29—Cruise Control Indicator
30—Wheel Slip Control Indicator
31—Starting Aid Indicator—6.8 L Engine Only

CS12167,0000906-19-11AUG16

Primary Display Unit (PDU) Features



N100183—UN—21SEP12

(1)—Stop Indicator Lamp (Red): illuminates when a diagnostic trouble code (DTC) is set with a Stop Level Priority and requires machine be stopped at once and problem corrected. (Example: Engine Oil Pressure Low).

(2)—Caution Indicator Lamp (Yellow): illuminates when a DTC is set with a Warning Level Priority and requires machine be stopped at the earliest convenience. (Example: Engine Air Filter Restriction).

(3)—Information Warning Indicator (Blue): illuminates when a DTC is set with an Information Level Priority to alert operator to be aware of a condition. (Example: Low Battery Voltage).

(4)—Tachometer (Engine rpm) Indicator: shows engine speed in multiples of 10. If "- - -" is displayed, no speed is being received.

(5)—Vehicle Speed Indicator: shows machine speed (km/h or mph).

(6)—High Exhaust System Temperature (HEST) Indicator: illuminates when ECU indicates that the temperature is above threshold.

(7)—Two-Wheel Steer Indicator (If Equipped): illuminates when two-wheel steering is selected. Front wheels steer with rear wheels locked in straight ahead position.

(8)—Exhaust Filter Cleaning Indicator (Final Tier 4/ Stage IV): illuminates when exhaust filter system is actively performing exhaust filter cleaning. When indicator illuminated and flashing, a parked cleaning is called for. See Exhaust Filter System in Engine and Drive Train section of this book for details.

(9)—Left Turn Indicator: shows operator that a left turn is planned. Simultaneous operation of right/left turn indicators shows operator that the hazard lights are activated.

(10)—Transmission Speed Indicator: shows the transmission state and target speed.

The first position character indicates the transmission state:

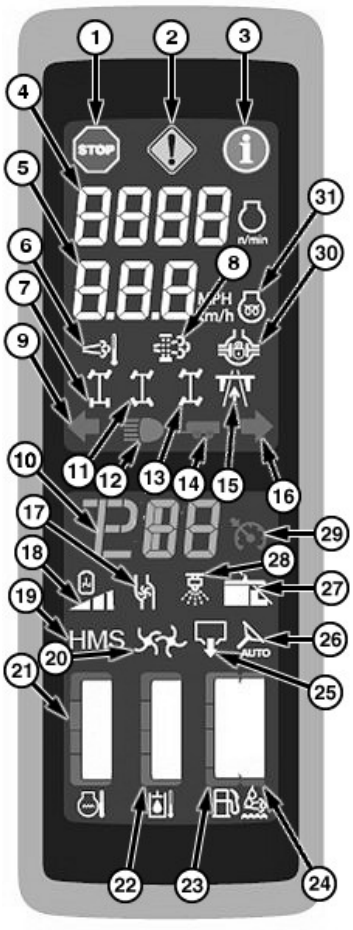
- " P" indicates the multi-function lever is in the "Park" position
- "F" indicates the transmission in field ranges and multi-function lever is out of the "Park" position
- "T" indicates the transmission in transport ranges and multi-function lever is out of the "Park" position

The second two characters indicate the target speed (in mph) when the multi-function lever is in the full forward position and engine operating at high idle. A "L" is displayed when low speed range is selected.

(11)—Four-Wheel Steer Indicator (If Equipped): illuminates when four-wheel steering is selected. Front and rear wheels turn following the same radius.

(12)—High Beam Indicator: shows operator that high beam lights are currently selected.

(13)—Crab Steer Indicator (If Equipped): illuminates when crab steering is selected. Front and rear wheels turn in the same direction so the machine offsets right or left.



N100183—UN—21SEP12

(14)—Trailer Lights (If Equipped): illuminates when trailer turn signals are functioning properly.

(15)—Transport Lock: illuminates when transport lock is engaged. When engaged, the transport lock will **disable** the following functions:

- Master ON/OFF switch
- Tread adjustment
- Hydraulic boom movements (folding/unfolding)

(16)—Right Turn Indicator: shows operator that a right turn is planned. Simultaneous operation of right/left turn indicators shows operator that the hazard lights are activated.

(17)—Solution Pump Indicator: illuminated when solution pump is active.

(18)—Agitation Level Indicator: illuminated when agitation is active and displays the amount valve is opened.

(19)—Headland Management System (If Equipped): illuminates when the system is enabled. Headland Management System (HMS) automatically raises and lowers the boom when vehicle exits and enters the headland.

(20)—Dry Spreader Spinners Indicator: illuminates when spinners are active.

(21)—Engine Coolant Temperature Gauge: indicates the engine coolant temperature. Green area indicates normal operating temperature, red indicates an overheating condition.

(22)—Hydraulic Oil Temperature Gauge: indicates the hydraulic oil temperature. Green area indicates normal operating temperature, red indicates an overheating condition.

(23)—Fuel Level Gauge: indicates the amount of fuel remaining in the fuel tank.

(24)—Diesel Exhaust Fluid (DEF) Level Gauge: Displays DEF level relative to fuel level. DEF consumption is 1:1 ratio to diesel fuel level.

(25)— Dry Spreader - Master On Indicator: illuminated when " Master On" switch is activated on multifunction control lever.

(26)—AutoTrac Indicator: illuminated anytime AutoTrac™ is actively controlling the steering system.

(27)—Section Control Indicator: illuminates when section control is enabled.

(28)—Spray - Master On Indicator: illuminated when (Master On) switch is activated on multifunction control handle.

(29)—Cruise Control Indicator: illuminates when the hydrostatic transmission is being controlled in the "cruise" mode by the software.

(30)—Wheel Slip Control Indicator: illuminates when wheel slip control is in ready state. The indicator will flash when actively controlling to eliminate slip.

(31)—Starting Aid Indicator—6.8 L Engine Only: illuminates when the engine control unit (ECU) activates the starting aid on the engine. When starting aid indicator is ON, the timer is displayed instead of vehicle speed. The timer may not always be available, but when available it will be displayed. The timer counts down to zero.

CS12167,0000907-19-11AUG16

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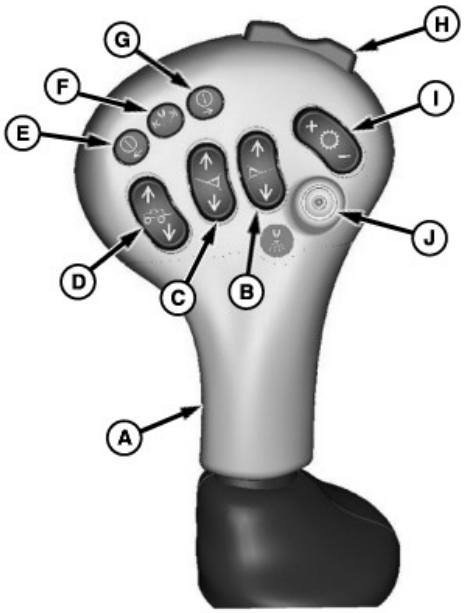
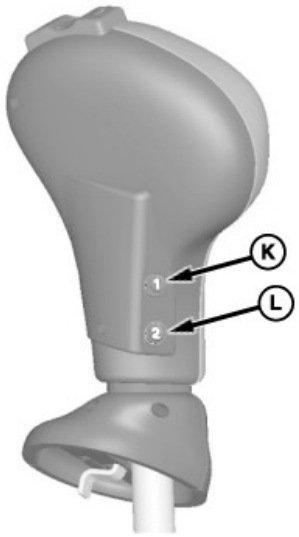
Multi-Function Lever



N63039—UN—02JUL03



N74364—UN—08DEC06

A—Multi-Function Lever
B—Right-Hand Boom Raise/Lower (Fold/Unfold) Switch
C—Left-Hand Boom Raise/Lower (Fold/Unfold) Switch
D—Center Boom Raise/Lower Switch
E—IBS (Index Boom Section Control System) Left Button
F—IBS Reset Button
G—IBS Right Button
H—Foam Marker Switch
I—Target Speed Switch
J—Spray System Master ON/OFF Switch
K—BoomTrac™Pro Resume Switch — If equipped
L—GreenStar™ AutoTrac™ Resume Switch — If equipped

NOTE: Depressing & holding boom fold mode switch located on the floor will change the function of the boom raise/lower switches to the function shown in ( ).

CS12167,0000908-19-11AUG16

Spray System Master On-Off Switch

N63294—UN—15JUL03

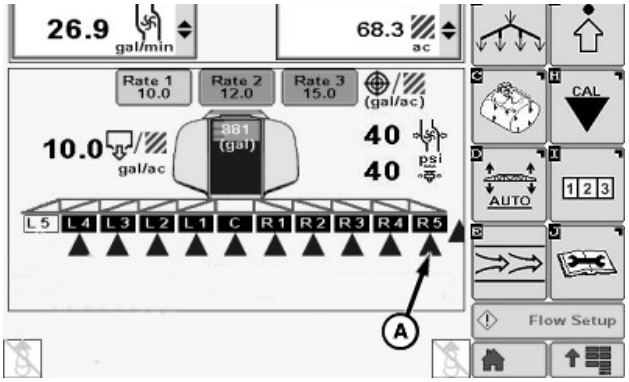
N136977—UN—19APR18

A—Switch
B—Indicator

Press switch (A) to turn enabled boom sections ON and press again to turn OFF.

LED light in the center of switch illuminates when the switch is on. The Master Spray On indicator (B) illuminates on the corner post display.

BoomTrac is a trademark of Deere & Company
GreenStar is a trademark of Deere & Company
AutoTrac is a trademark of Deere & Company



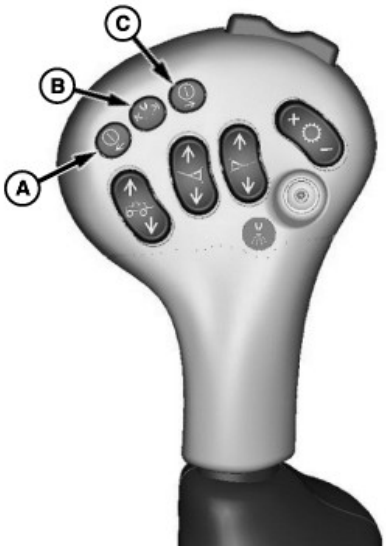
N136976—UN—19APR18

A—Sections Spraying

Sections (A) that are actively spraying, once the master on-off switch is pressed, appear on the display with a dark background and a lighter letter with a cone showing below the section.

BN55050,000018F-19-19APR18

IBS Index Boom Section Buttons



N63297—UN—15JUL03

A—IBS Left Button
B—IBS Reset Button
C—IBS Right Button

Use IBS Left Button (A) to sequentially shut off individual boom sections starting at right-hand end of boom moving to left.

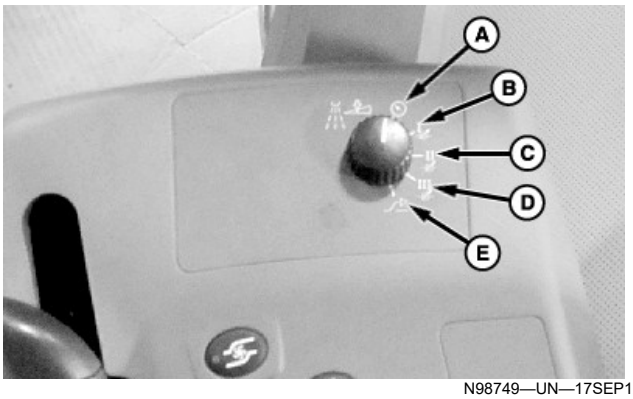
Use IBS Reset Button (B) to restart all shut-off sections that are enabled.

Use IBS Right Button (C) to sequentially shut off individual boom sections starting at left-hand end of boom moving to right.

See Operating IBS in Operating The Machine section for detailed procedures.

RG53986,00012F3-19-21AUG12

Rate Selection Switch



N98749—UN—17SEP12

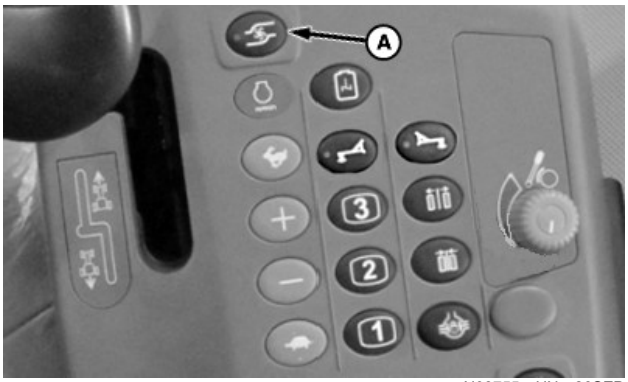
A—Manual Position
B—Rate 1 Position
C—Rate 2 Position
D—Rate 3 Position
E—"AUX" Position

Rate selection switch is used to select between three operator programmed target rates or manual targeted pressure (independent of speed) in SprayStar™ system.

NOTE: "AUX" position is used for map based spraying (if equipped)

RG53986,00012E1-19-04JUN13

Solution Pump Switch



N98755—UN—26SEP12

SprayStar is a trademark of Deere & Company

N102005—UN—22MAY13

A—Solution Pump Switch
B—Indicator

Press solution pump switch (A) to engage solution pump. Press switch again to disengage pump. Indicator (B) on primary display unit will light when solution pump is engaged.

RG53986,00012F4-19-11FEB13

Transport Lock Switch

N97493—UN—17SEP12

N102007—UN—22MAY13

A—Transport Lock Switch
B—Indicator Light
C—Primary Display Unit Indicator

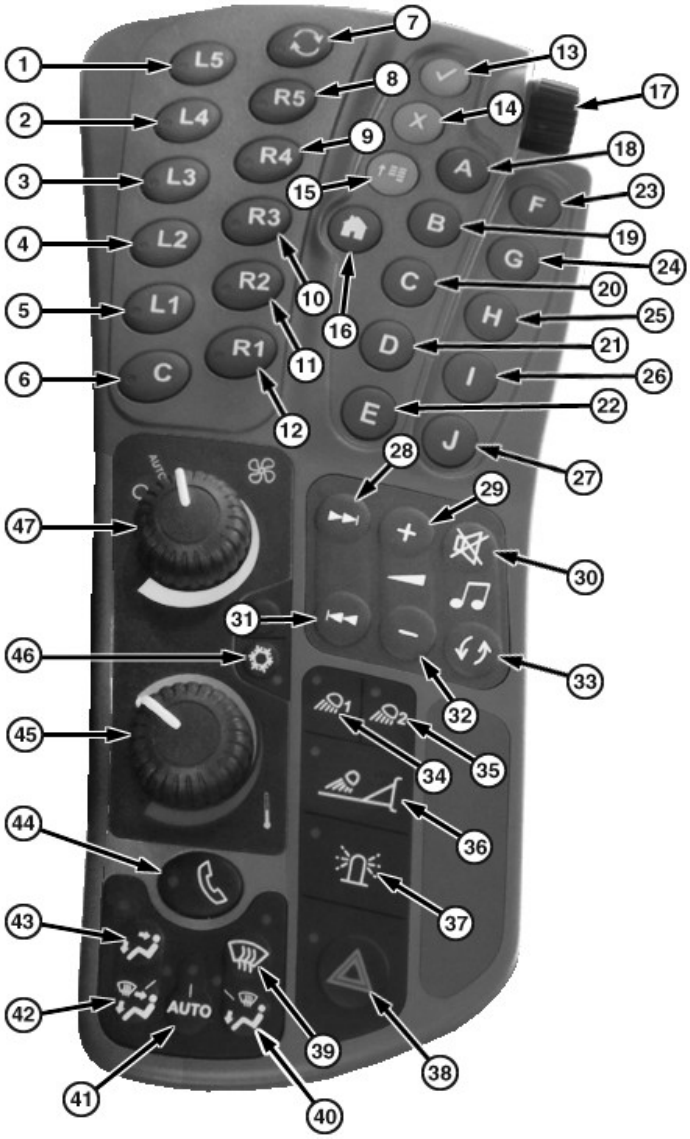
The Transport Lock should be engaged when traveling on the road. To engage, press the transport lock switch (A). Primary display unit indicator (C) will light when transport lock is engaged. The transport lock indicator light (B) will illuminate and the following functions will be **disabled**:

- Master ON/OFF switch
- Tread adjustment
- Hydraulic boom movements (folding/unfolding)

Press and hold switch for 2 seconds to turn Transport Lock off.

CS12167,0000768-19-30MAR15

CommandARM Side Console Controls

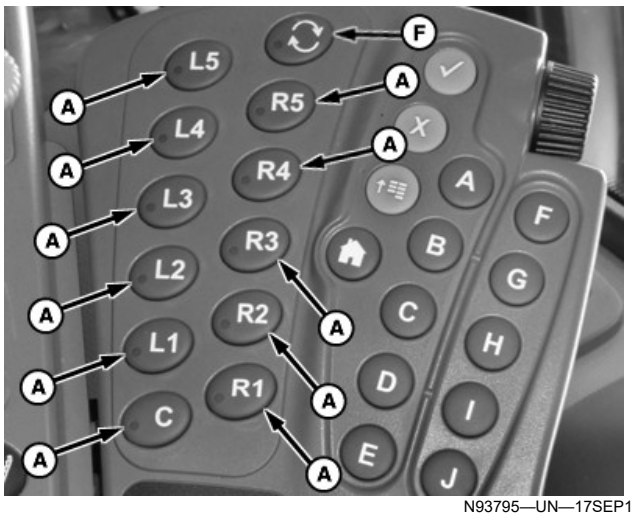


N93788—UN—17SEP12

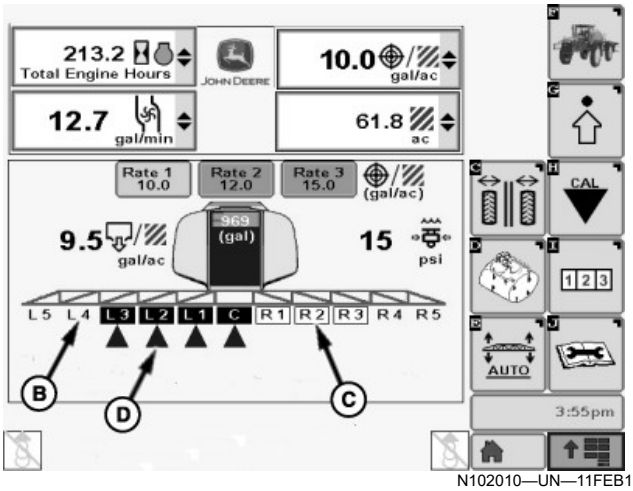
1—L5 Boom Section Switch
2—L4 Boom Section Switch
3—L3 Boom Section Switch
4—L2 Boom Section Switch
5—L1 Boom Section Switch
6—Center Boom Section Switch
7—All Boom Sections ON Switch
8—R5 Boom Section Switch
9—R4 Boom Section Switch
10—R3 Boom Section Switch
11—R2 Boom Section Switch
12—R1 Boom Section Switch
13—Confirm Switch
14—Cancel Switch
15—Main Menu Switch
16—Home Switch
17—Selection Dial
18-27—A—J Shortcut Switches
28—Seek Forward Switch
29—Volume Increase Switch
30—Mute Switch
31—Seek Reverse Switch
32—Volume Decrease Switch
33—Pre-Set Channel Select Switch
34—Work Lights 1 Switch
35—Work Lights 2 Switch
36—Boom Lights Switch
37—Beacon Light Switch
38—Hazard Light Switch
39—Defrost Switch
40—Defrost and Floor Switch
41—Auto HVAC Switch
42—Defrost, Floor, and Cab Switch
43—Cab and Floor Switch
44—Phone Switch
45—Temperature Control Dial
46—Air Conditioning Switch
47—Fan Speed Control Dial

CS12167,00004EB-19-03DEC13

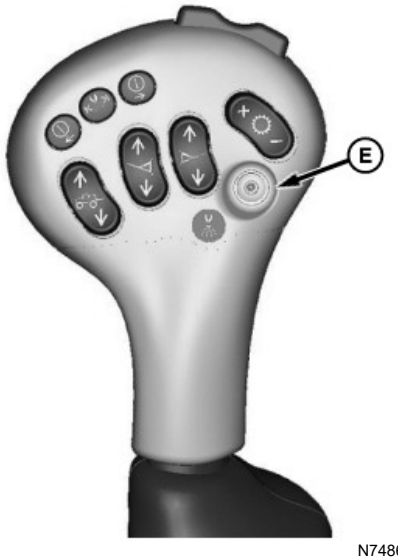
Operate Boom Section Switches



N93795—UN—17SEP12



N102010—UN—11FEB13



N74865—UN—19JAN07

A—Boom Section Switch
B—Section Disabled
C—Section Turned OFF with IBS or Section Control
D—Section Spraying
E—Master ON/OFF Switch
F—All Sections ON Switch

Push boom section switches (A) to enable corresponding boom sections. Disabled sections appear as black lettering with no box (B). Enabled sections appear as a white box with black lettering (C). Enabled sections that have been activated (are spraying currently) with master ON/OFF switch (E) show a cone beneath the section (D). All Sections ON Switch (F) can be used to enable all disabled sections.

NOTE: Boom sections numbered as 1 closest to center on designated side, and 5 being farthest to outside.

All boom sizes do NOT require 11 sections. Unused section switches will be capped.

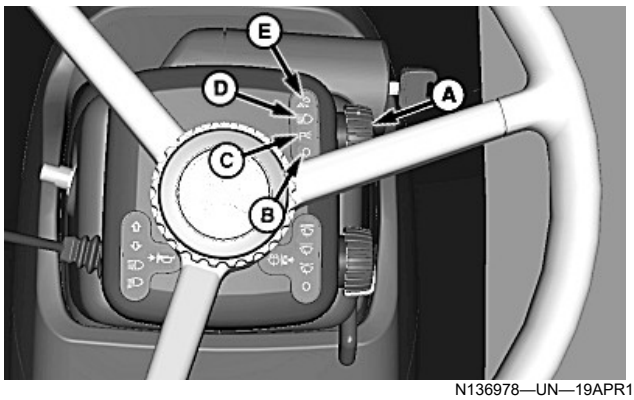
Machines equipped with the nozzle control system can be configured with up to 11 sections. Caps must be removed from the remaining section switches if the machine originally had less than 11 sections. (See Spray Section Setup in the System Setup section.)

CS12167,0000909-19-11AUG16

Operate Lights

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.

To avoid motorist confusion, do not operate work lights when transporting on public roadways.



N136978—UN—19APR18

A—Light Switch
B—Off Position
C—Park Light Position
D—Road Light Position
E—Field Lights Position

Light switch (A) has four positions—OFF (B), Park lights (C), Road light (D), and Field lights (E).

N137012—UN—19APR18

A—Field Position 1
B—Field Position 2
C—Boom Lights

IMPORTANT: The light switch has to be in field light position for field lights (A, B, and C) to work

Field Light switches—Field position 1 (A), Field position 2 (B), and Boom lights (C).

OFF POSITION

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

BN55050,0000190-19-27APR18

Nozzle Control System

Nozzle Control System Overview

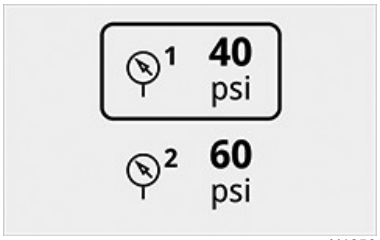
The nozzle control system allows individual nozzle bodies to be turned on and off based on Section Control. The nozzle bodies each contain two valves that can be pulsed or turned on continuously for spraying. There are five active nozzle settings available for the system; A only, B only, A + B, combined A + B, and automatic. Nozzle control provides the operator a larger speed range and varied application rates without changing pressure or spray tips. Operating a combination of nozzle pulsing and active nozzle settings allows the system to maintain a constant pressure and droplet size while changing speeds. These features also allow the system to change the rate and the spray width, compensating for speed differences at boom ends when turning. Prescription or map-based applications are also possible using nozzle pulsing. When section control is used nozzle bodies are turned ON or OFF individually minimizing the amount of overlap.

Active Nozzle Selection allows operator to select the desired nozzle or combination of nozzles to use during the application.

*NOTE: Nozzles 1, 2, or 3 must be in the forward position for all modes **except** Combined A + B.*

N125630—UN—16DEC16

- **A Only (Example Shown)** — only solenoid A is activated or pulsed during application. The A nozzle is the forward most spray tip on the nozzle body. Solenoid B and all other spray tips remain OFF in this mode.
- **B Only** — only solenoid B is activated or pulsed during application. The B nozzle is the rearward most spray tip on the nozzle body. Solenoid A and all other spray tips will OFF in this mode.
- **A + B Nozzle** — nozzle 1, 2, or 3 is in the forward position. Both solenoids A and B are activated in this mode. Solution is sprayed from both nozzles.
- **Automatic** — nozzle control unit determines which solenoid or combination of solenoids to activate in order to achieve the desired application rate. Solenoids are not pulsed in this mode.
- **Combined A + B** — nozzle 4, 5, or 6 is in the forward position. Both solenoids A and B are activated or pulsed in this mode. The full volume of solution is sprayed through the front nozzle.



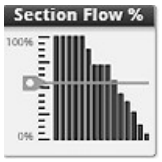
N125615—UN—16DEC16

Two target pressure settings are available. Both settings are available in the A only, B only, A + B, and Combined A + B active nozzle selections. Nozzle pulsing must be enabled in automatic pulsing setting in order to use target pressures. Target pressures are maintained throughout the spray application. Changes to the target pressure made on the run page overwrite the value entered on setup page.

The Turn Compensation feature allows the duty cycle (solenoid ON time) of each nozzle body to vary along the spray boom.

The flow through the inside nozzles during a turn is reduced. Reducing the duty cycle (solenoid ON time) causes less solution to be sprayed controlling over application on the slower moving boom sections.

The flow through the outside nozzles during a turn is increased. Increasing the duty cycle (solenoid ON time) causes more solution to be sprayed, controlling under application on the faster moving boom sections.



N127957—UN—05JAN17

Section Flow

Section Flow %

The section flow is an available run page module. It displays the average flow percentage for each virtual section in graph form. The average flow percentage is the percent of maximum flow possible being used for the current active spray tip. In the example shown, the machine would be making a right-hand turn. The graph decreases gradually as it progresses from the left-hand side to the right-hand side of the spray boom. The Section Flow % graph is generated from vehicle heading and always active and updating when in Auto pulsing mode. Optimization: If nozzles are sized correctly the average flow percentage should read approximately 75% at maximum speed to account for turns when turn compensation is being used. If average flow percentage is greater than approximately 75% when operating at maximum speed it indicates nozzles are too small.

- The Section Flow % bars will display 100% when the valve pulsing mode is set to “off” in the manual setup page for the nozzle turrets.

- The Section Flow % bars will display the nozzle flow percentage set by operator when valve pulsing mode is set to “fixed” in the manual setup page for the nozzle turrets.
- The Section Flow % bars will change percentage when the valve pulsing mode is set to “Auto” in the manual setup page for the nozzle turrets.

The Section Flow % widget also provides the operator with a visual representation of the minimum flow % or duty cycle for the current setup to maintain desired application pressure. The horizontal gray line is the "floor" of the percent flow, percent flow by virtual section is then indicated by the vertical blue bars. Within the advanced settings of the Booms and Nozzles page there is a check box under nozzle flow that says “Limit Minimum Flow %”. If this box is checked the floor will be approximately 25%. Upon key on, the system begins calculating values based on the nozzle size you choose and what the software has populated for flow relative to specific tips. The line tends to adjust with real time nozzle size calculations done by the system as there are increases in speed which would ultimately increase system flow. For optimal application performance, it is recommended to remain at or above this indication, when traveling in a straight line at minimum desired application speed to maintain desired application pressure. If the machine speed is reduced and the % flow bar indicates operation below this line, rate will continue to be maintained by the ExactApply™ system, however, the operator will notice application system pressure lower than desired or input. The system will continue to adjust and maintain rate until the minimum spray pressure setting value is reached and will maintain that minimum pressure value setting until either speed is increased, machine is stopped or Master Spray is disabled.

Variable rate prescription applications are also possible when using the Nozzle Control system.

NOTE: Prescriptions must be created externally and then loaded to the machine before prescription application can be performed.

BN55050,0000497-19-19JUN20

ExactApply™ Mode Comparison

The following table aids in easy comparison of the ExactApply™ operation modes.

ExactApply™ Mode Comparison

	Nozzles 4, 5, or 6 in the Front Position		Nozzles 1, 2, or 3 in the Front Position		
	Combined A + B—Pulsing OFF	**Combined A + B—Automatic Pulsing**	**A Only or B Only—Automatic Pulsing**	**A + B—Automatic Pulsing**	**Automatic—Pulsing OFF**
Speed Range	Base	Better	Best	Best	Good
Turn Compensation	Not applicable	Good	Best	Best	Not applicable
Boost	Not applicable	Good	Best	Best	Not applicable
Pressure Selection	Not applicable	Target	Target	Target	Target Range
Coverage	Best	Best	Good	Best	Best
High Application Rates	Best	Better	Good	Best	Best
Manual Nozzle Selection using the Display or CommandARM™	No	No	Yes	Yes	Yes
Notes		a	b	c, d, e	f, g

CommandARM is a trademark of Deere & Company

Notes:

- a—One nozzle supplied by two solenoids with alternating pulses
- b—One nozzle supplied by one solenoid
- c—Supplies two nozzles with one solenoid each with alternating pulses.
- d—Different spray tip sizes can be used on both turret positions. Spray tips must be 02 or larger.
- e—Dual fan pattern possible
- f—Uses a small and a large spray tip. The large spray tip cannot be more than double the size of the small spray tip.
- g—Sprays without pulsing, automatically switching between the front, rear, or both nozzles within an operator set pressure range.

BN55050,0000291-19-06JUN18

Use with Aftermarket Equipment

Nozzle bodies are not compatible with non-John Deere aspirators.

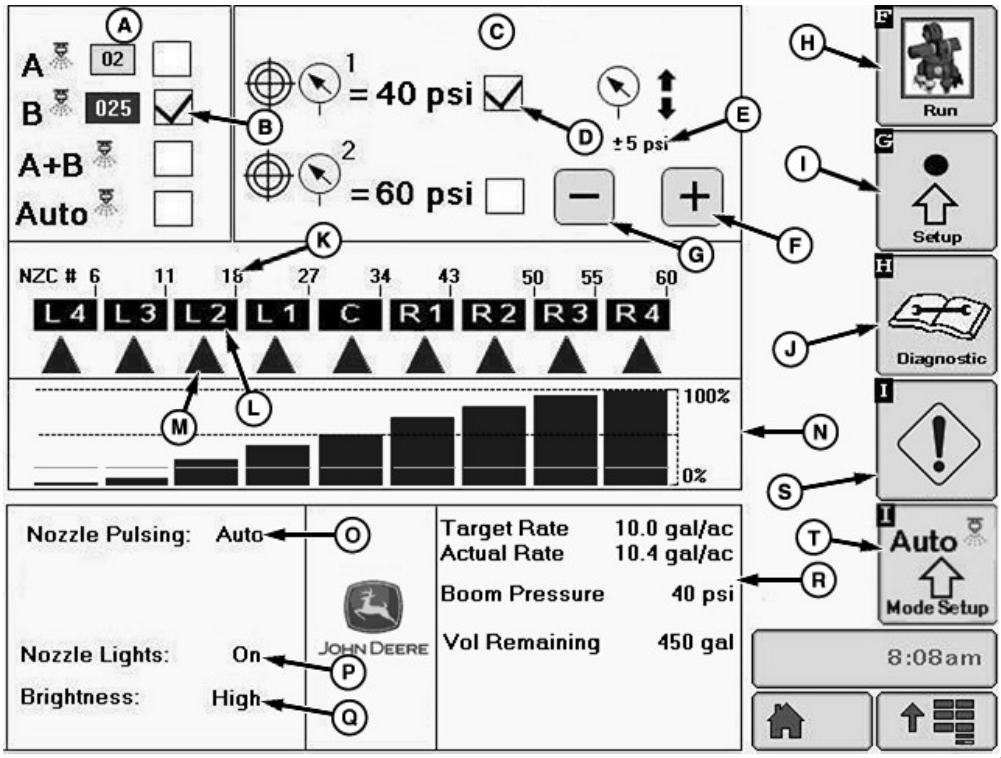
ExactApply is a trademark of Deere & Company

Machine strainer sizes must not be modified when the nozzle control system is installed on the machine.

Pressure strainers installed on the machine must be 80 mesh to reduce spray tip and solenoid plugging.

CS12167,000094D-19-30NOV16

Nozzle Control Run Page



N120512—UN—16NOV16

Nozzle Control Run Page displays information about the nozzle control system. Solution system information is also displayed for operator reference. Adjustments to active nozzle selection and target pressure can be made from this page also.

Spray Mode Area (A)— displays current Active Nozzle Selections along with the size of spray tips A and B.

Spray Mode Checkbox (B)— allows the operator to change Active Nozzle Selection without accessing setup pages.

Target Pressure Area (C)— displays target pressure settings and allows for target pressure adjustment during operation when enabled.

Target Pressure Checkbox (D)— indicates the selected target pressure. Allows operator to change between target pressure 1 and 2 during application.

Target Pressure Adjustment Increment (E)— displays the amount that target pressure changes when adjusted using the pressure increase or decrease buttons.

Pressure Increase Button (F)— Increases selected target pressure by the displayed increment per button press.

Pressure Decrease Button (G)— Decreases selected target pressure by the displayed increment per button press.

Run Softkey (H)— select to access run page.

Setup Softkey (I)— select to access setup page.

Diagnostic Softkey (J)— select to access diagnostic pages.

Nozzle Count Number (K)— number of the right-hand most nozzle on that section. Nozzles are numbered left to right across the boom.

Spray Section (L)— displays the status of nozzles in each spray section. Nozzles are enabled but not spraying when shown with white letters and a black background. A **cone** (M) indicates that nozzles are spraying. Nozzles are disabled when shown with black letters and a white background.

NOTE: Spray sections are customizable to the operators preference. See Spray Section Setup in the System Setup section.

Nozzle Flow Display (N)— displays the current percent

of maximum flow being used by each section in graph form.

Nozzle Pulsing Mode (O)— displays mode selected. Mode must be edited from setup pages. If fixed duty cycle is selected then the chosen duty cycle is displayed here also.

Nozzle Lights Mode (P)— displays mode selected. Mode must be edited from setup pages.

Nozzle Light Brightness (Q)— displays brightness setting selected.

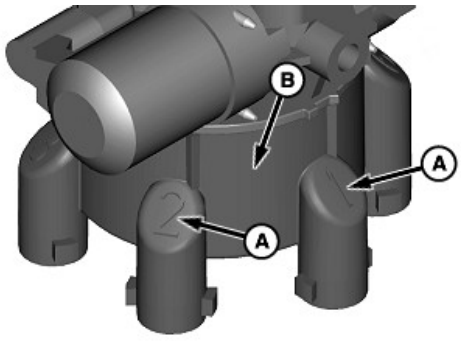
Solution System Information (R)— displays readings from the solution system.

Fault Summary Softkey (S)— select to view system faults that have occurred.

Automatic Nozzle Selection (T)— select to set up automatic nozzle selection mode.

BN55050,0000249-19-18MAY18

Nozzle Body Indicators

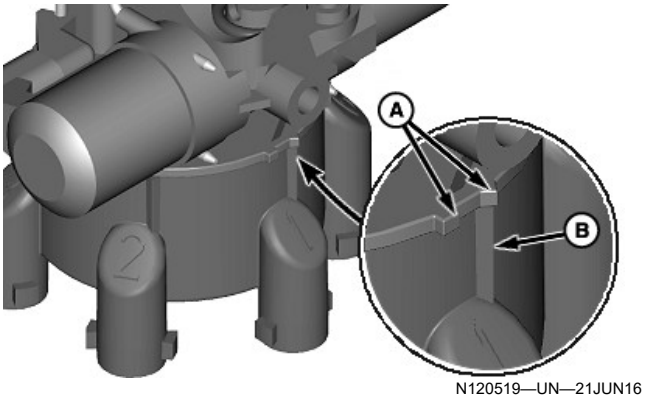


N120518—UN—21JUN16

A—Nozzle Positions
B—Nozzle Body Turret

Nozzle positions 1 - 6 (A) are stamped on the nozzle body turret (B) aiding in correct spray tip placement and control unit configuration.

Indicators also inform the operator if the spray tip receives flow from one solenoid or two. Nozzle positions 1 - 3 have one mark on the turret. Nozzle positions 4 - 6 have two marks on the turret.



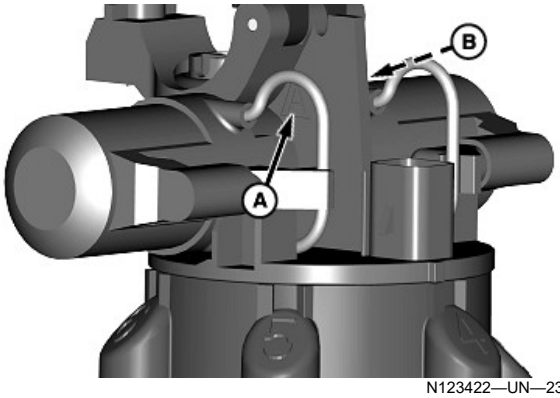
N120519—UN—21JUN16

A—Nozzle Body Indicator Marks
B—Turret Indicator Marks

Indicator marks (A) on the nozzle body align with one or more indicator marks (B) on the turret when in the correct position. When one mark is aligned, solution flow is only provided from one solenoid to that nozzle. When two marks are aligned, the solution flow from both solenoids is provided to that nozzle. If no marks are aligned, there is no solution flow to that nozzle.

Indicator marks must be aligned to like shapes for solution to be sprayed from that nozzle.

NOTE: Front indicator marks are difficult to see due to boom frame. Align rear indicator marks correctly to ensure that front nozzle is aligned.



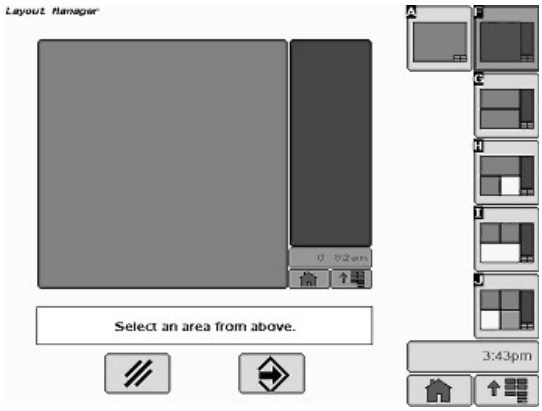
N123422—UN—23AUG16

A—Solenoid A Indicator
B—Solenoid B Indicator

Solenoid position indicators (A and B) are stamped into the nozzle body to aid in diagnosing a system fault. Solenoid indicators also aid in understanding the system operation in different modes.

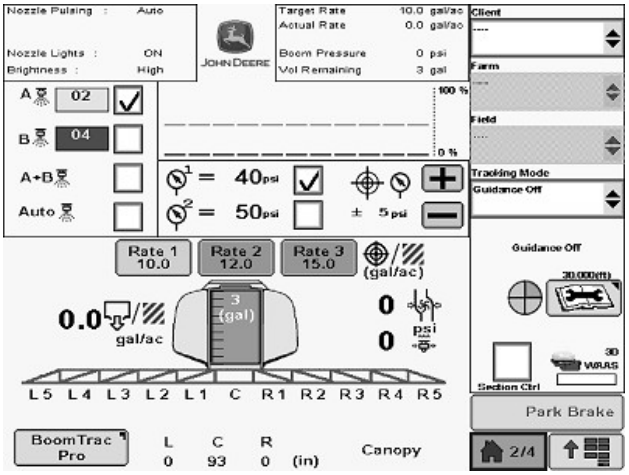
BN55050,0000176-19-17APR18

Layout Manager



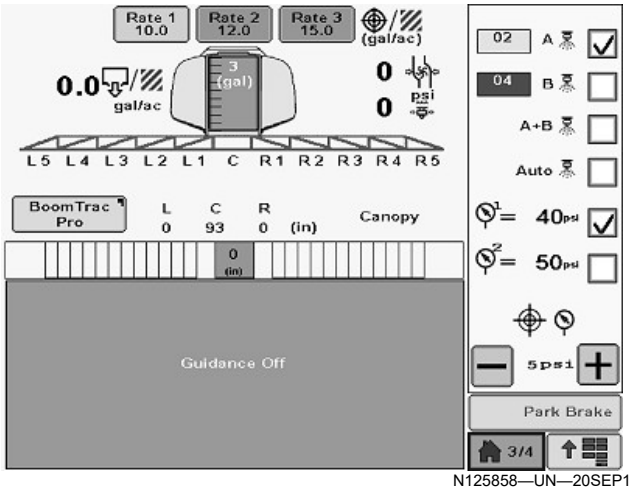
PC9036—UN—17APR06

Layout Manager Option A



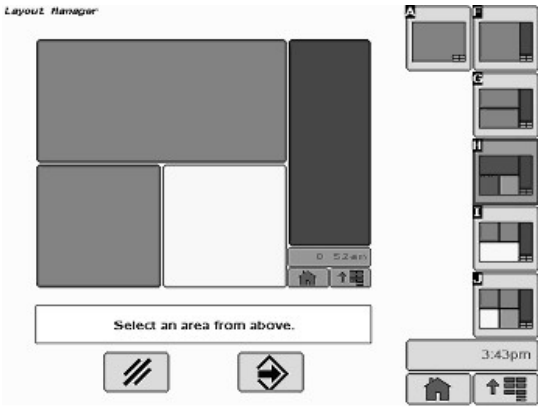
N125857—UN—20SEP16

Example of Layout Option B



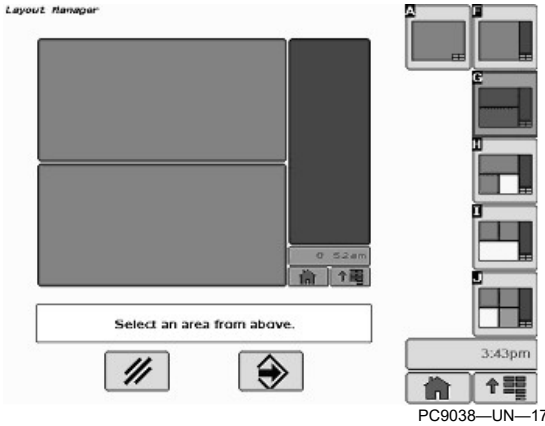
N125858—UN—20SEP16

Example of Layout Option A



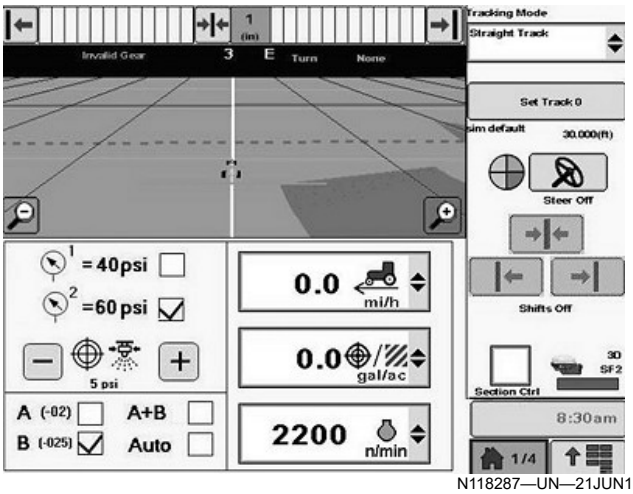
PC9040—UN—17APR06

Layout Manager Option C



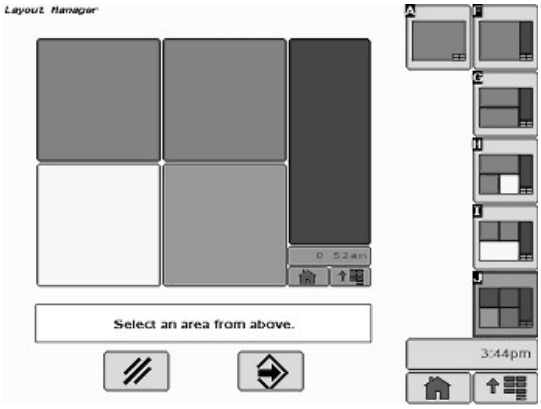
PC9038—UN—17APR06

Layout Manager Option B



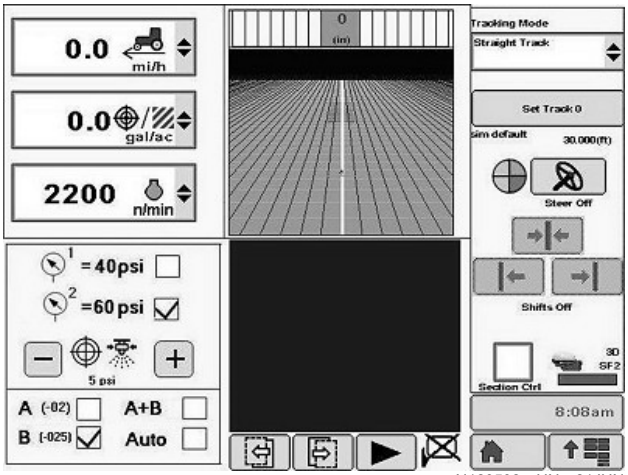
N118287—UN—21JUN16

Example of Layout Option C



PC9044—UN—17APR06

Layout Manager Option D



N120502—UN—21JUN16

Example of Layout Option D

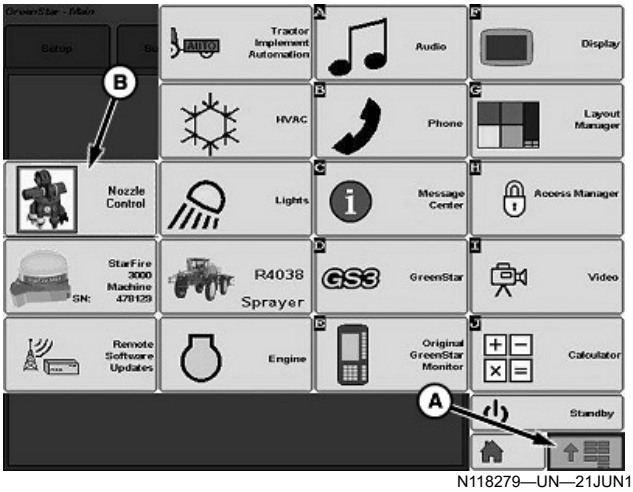
IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. This will ensure the setup data is saved to the data card prior to operating.

If the vehicle is running during setup and programming, turn the vehicle off with key in the OFF position and wait 30 seconds before restarting. This ensures that all data is saved to the data card.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

CS12167,0000822-19-19SEP16

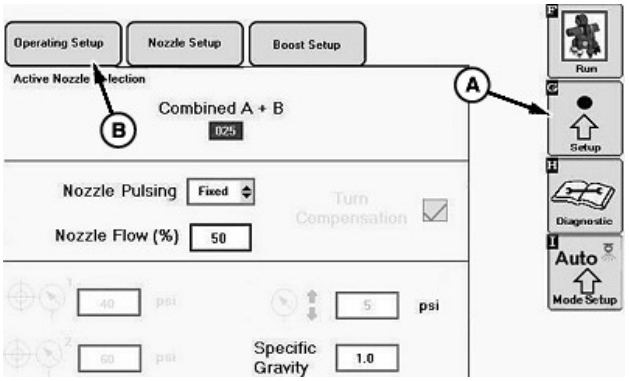
Operating Setup Tab



N118279—UN—21JUN16

A—Application Menu Button
B—Nozzle Control Application

1. Select Application Menu button (A).
2. Select Nozzle Control application (B).



N137013—UN—19APR18

A—Setup Softkey
B—Operating Setup Tab

3. Select Setup softkey (A).
4. Select Operating Setup tab (B).

   The following items are available for setup:

   - Active Nozzle Selection
   - Nozzle Pulsing Mode
   - Nozzle Flow
   - Turn Compensation
   - Target Pressures
   - Target Pressure Bump Increment
   - Specific Gravity of Solution
   - Nozzle Lights and Brightness

BN55050,0000191-19-19APR18

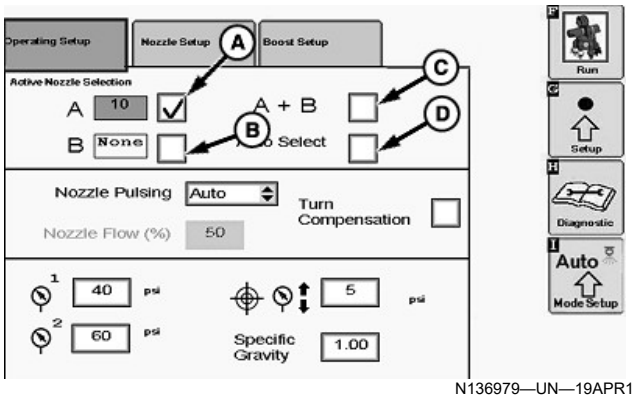
Active Nozzle Selection

Active Nozzle Selection allows the operator to choose

the desired nozzle or combination of nozzles to use during application. The following selections are available when nozzle 1, 2, or 3 is in the A (front) position:

- **A**— Only front nozzle and solenoid A active during application. Use for maximum speed ranges, better turn compensation performance, and 15 or smaller tip size is used.
- **B**— Only rear nozzle and solenoid B active during application. Use for maximum speed ranges, better turn compensation performance, and 15 or smaller tip size is used.
- **A + B**— Nozzle 1, 2, or 3 is in the front position. Both solenoids A and B are activated in this mode. Solution is sprayed from both front and rear nozzles.

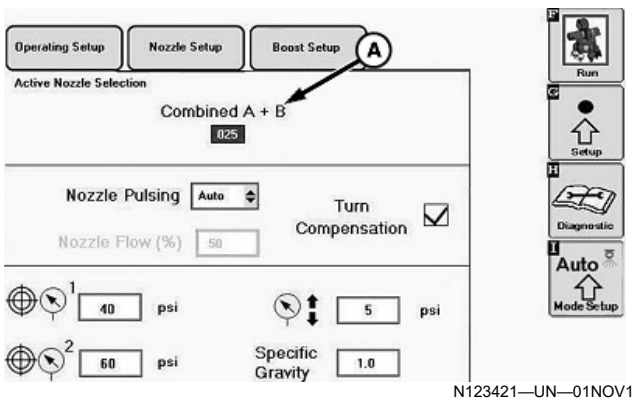
  Use with size 15 or smaller spray tips. Different tip sizes can be installed in A and B locations.
- **Auto Select**— Nozzle control unit determines which solenoid or solenoid combination to operate during application. Which nozzle is active is not displayed the operator. (See Automatic Nozzle Selection Setup in this section.) Air induction nozzles are not compatible with nozzle pulsing but operate correctly in the Auto Select mode.



N136979—UN—19APR18

A—Nozzle A Only Checkbox
B—Nozzle B Only Checkbox
C—A + B Checkbox
D—Automatic Selection

Select checkbox (A—D) for the desired active nozzle selection.



N123421—UN—01NOV16

A—Combined A + B

Combined A + B Option

Combined A + B (A) option is available when nozzle 4, 5, or 6 is in the front position. Both solenoids A and B are activated or pulsed in this mode. Combined A + B pulses nozzles at 30 Hz (30 times per second), twice the pulse rate of when only one nozzle is pulsed. The full volume of solution is sprayed through the front nozzle.

BN55050,0000192-19-19APR18

Nozzle Pulsing Settings

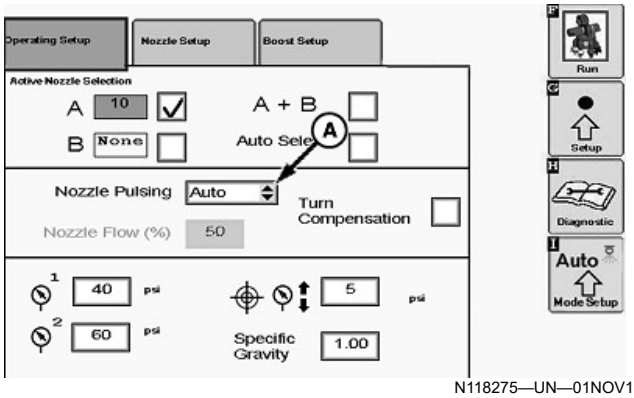
Nozzle Pulsing Mode

Nozzle pulsing allows a reduced rate to be applied while maintaining system pressure for constant droplet size. Nozzle pulsing also enables the machine to apply an even rate when turning. This feature is available with A, B, and Combined A and B active nozzle selections. The following modes are available:

- **OFF** — Selected nozzles are continuously open (no pulsing) when the master spray switch is pressed ON.
- **Auto**— The control unit controls nozzle flow to achieve the desired application rate and maintain the desired spray pressure.
- **Fixed** — Operator enters desired nozzle flow percentage. No adjustments to the nozzle flow are made automatically.

NOTE: Pulsing is not allowed when using tip sizes smaller than 02.

Follow spray tip manufacture's recommendations for use with pulsing modes on air induction spray tips.



N118275—UN—01NOV16

A—Nozzle Pulsing Drop-Down

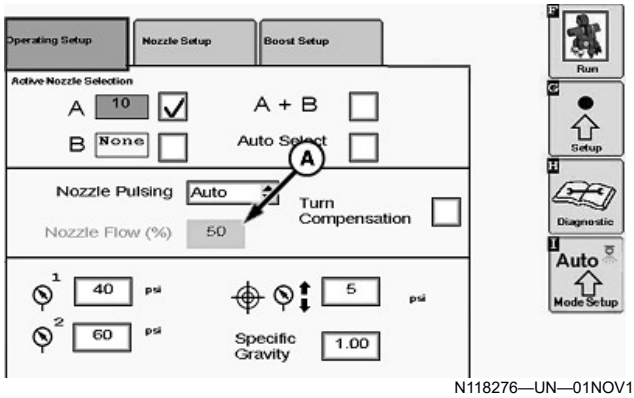
1. Select Nozzle Pulsing drop-down (A).
2. Choose desired nozzle pulsing mode.

Nozzle Flow

Nozzle flow setting allows the operator to input the

desired percentage of flow desired from the active tip. This amount of flow is constantly maintained during application when Fixed is selected from the Nozzle Pulsing drop-down. Nozzle flow is represented as a percentage of the maximum amount of flow possible through the selected tip size. Nozzle flow settings 1—100 percent are available. Fixed nozzle flow can be used to cause a large spray tip to function as a smaller spray tip.

Example: A 08 spray tip operated at a fixed 50 percent nozzle flow now operates as a 04 spray tip.



N118276—UN—01NOV16

A—Nozzle Flow Input Box

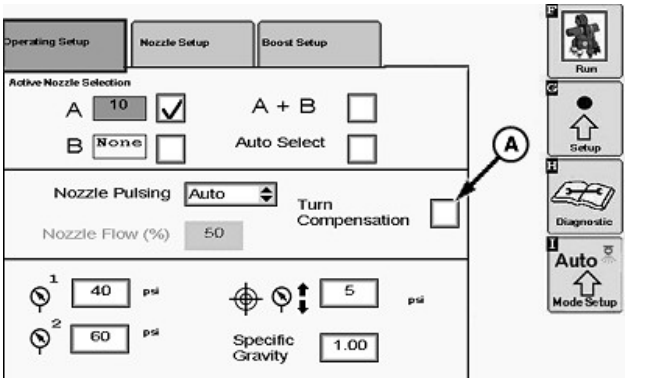
1. Select Nozzle Flow input box (A).
2. Enter desired flow percentage using keypad.
3. Select enter to confirm value.

Turn Compensation

Turn Compensation allows the machine to vary the application rate along the entire spray boom width, accounting for the varying speeds during a turn.

Nozzle pulsing must be set to Automatic for Turn Compensation to be active. Set active nozzle selection to one of the following modes A only, B only or Combined A + B. Nozzle control unit regulates the nozzle flow of each nozzle to provide an even rate along the spray boom.

When operating in a field requiring a large amount of turn compensation it is best to use a lower level of the solenoid duty cycle. High duty cycles when using turn compensation can impair the systems ability to achieve the desired rate on the outer end of the boom.



N118277—UN—01NOV16

A—Turn Compensation Checkbox

NOTE: Turn Compensation checkbox (A) is grayed out if correct conditions are not met.

A StarFire™ receiver must be installed in order to use the turn compensation function.

Select Turn Compensation checkbox to enable feature.

BN55050,0000193-19-18APR18

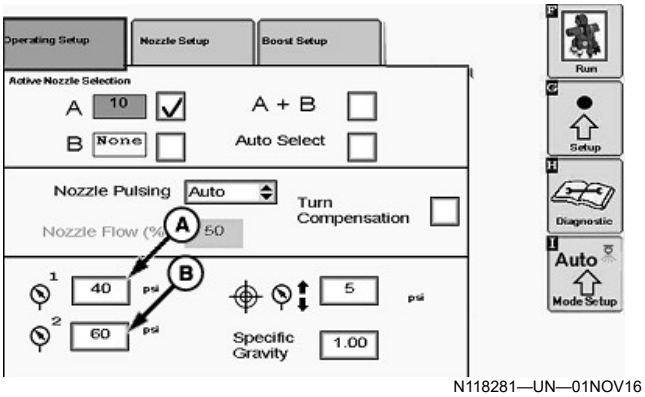
Target Pressure Settings

Target Pressure

Target pressure is the system pressure maintained during application. Target pressure is used to maintain a consistent droplet size from the selected spray tip.

Nozzle pulsing must be set to Automatic for Target Pressure to be active. Set active nozzle selection to any available spray mode.

NOTE: Target pressure input boxes are grayed out when correct conditions are not met.



N118281—UN—01NOV16

A—Target Pressure 1 Input Box
B—Target Pressure 2 Input Box

1. Select Target Pressure input boxes (A and B).

NOTE: Available pressure range is 34 - 1034 kPa (0.34 - 10.34 bar) (5 - 150 psi).

StarFire is a trademark of Deere & Company

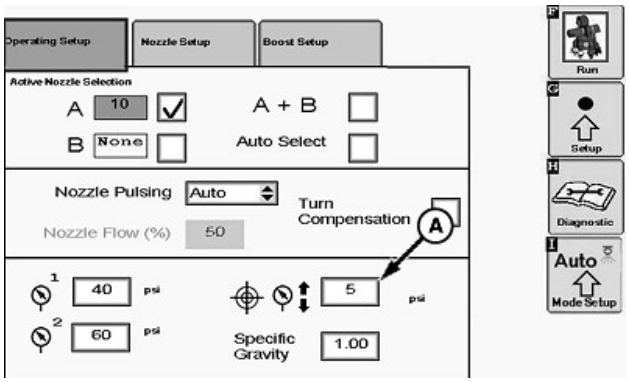
Nozzle control system does not override the minimum spray system pressure entered during the machine setup.

2. Enter desired pressure using keypad.
3. Select Enter button to confirm.

Target Pressure Adjustment Increment

Target pressure adjustment increment is the amount the target pressure is increased or decreased per button press when modified on the run page. If target pressure is adjusted on the main page the value saved on the setup page is also adjusted.

Increment range is 5—350 kPa (0.05—3.50 bar) (1—50 psi)



N118282—UN—01NOV16

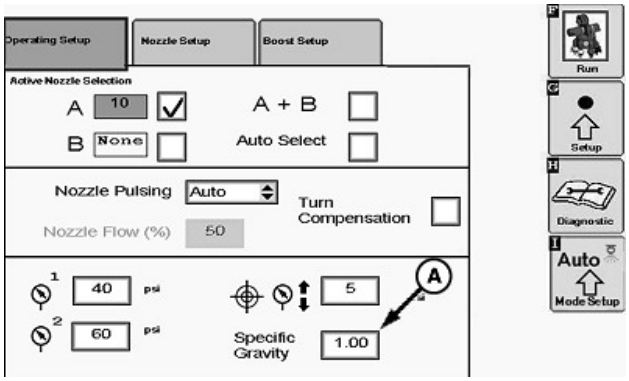
A—Adjustment Increment Input Box

1. Select adjustment increment input box (A).
2. Select desired adjustment increment using keypad.
3. Select Enter button to confirm.

Specific Gravity

See Conversion Factors (Calibrating for Carriers Other Than Water) in Wet System section of machine Operator's Manual for examples of common carriers and their specific gravities.

Correct specific gravity improves pressure control when pulsing and adjusts automatic nozzle selection spray speeds.



N118283—UN—01NOV16

A—Specific Gravity Input Box

1. Select Specific Gravity input box (A).
2. Enter the specific gravity of the solution using keypad.
3. Select Enter button to confirm.

BN55050,0000194-19-18APR18

Nozzle Lights

Nozzle lights illuminate the spray boom allowing the operator to verify that all nozzles are operating properly. Nozzle lights can be operated during application or when not spraying when maintenance mode is selected. Nozzle lights have four modes of operation:

- ON - lights are illuminated when a nozzle is spraying. Use for low light or night time operation.
- STROBE - lights pulse (flash) when a nozzle is spraying. Use for low light or night time operation.
- OFF - lights are off at all times.
- MAINTENANCE - lights are illuminated continuously. Nozzle state has no effect on lights.

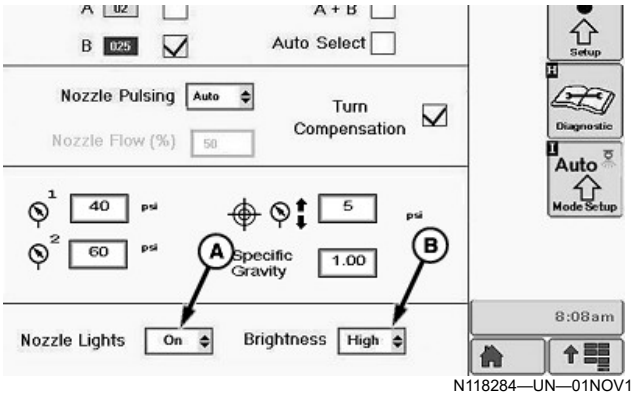
CAUTION: Do not transport machine when nozzle lights are in maintenance mode. Your vision and the vision of others will be impaired.

NOTE: See Operate Nozzle Lights in the Operate Nozzle Control section for more information.

Nozzle lights have three brightness settings:

- High
- Medium
- Low

NOTE: The vertical placement of spray pipes and nozzle bodies affect overall lighting effectiveness.



N118284—UN—01NOV16

A—Nozzle Lights Drop-Down
B—Brightness Drop-Down

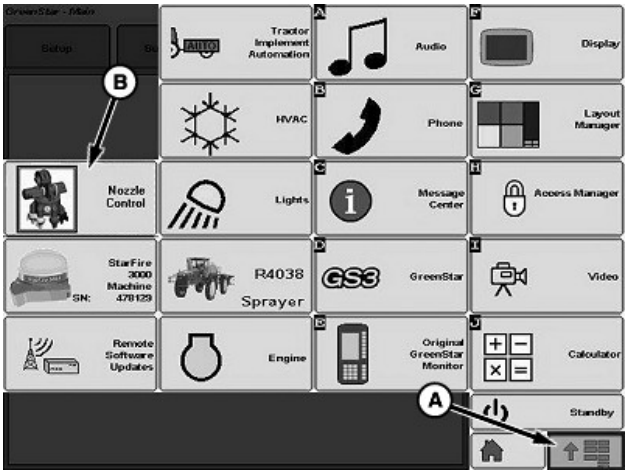
1. Select Nozzle Lights drop-down (A).

2. Select desired light mode.
3. Select Brightness drop-down (B).
4. Select desired brightness.

CS12167,0000826-19-08SEP16

Nozzle Setup Tab

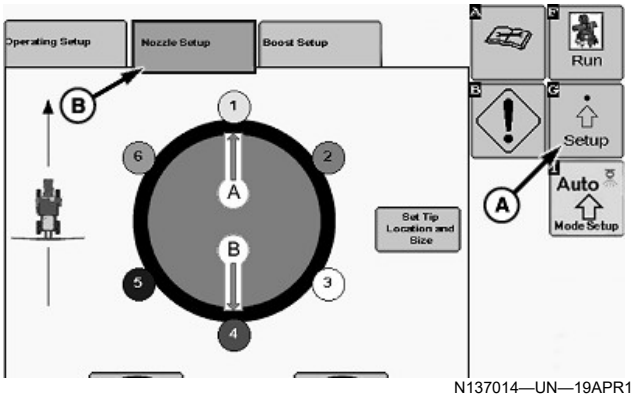
Nozzle setup tab allows the operator to view the nozzles installed on turret, the solution flow for the selected active nozzle. Spray tip size and location can be modified and turret orientation can be set as well.



N118279—UN—21JUN16

A—Application Menu Button
B—Nozzle Control Button

1. Select Application Menu button (A).
2. Select Nozzle Control application (B).



N137014—UN—19APR18

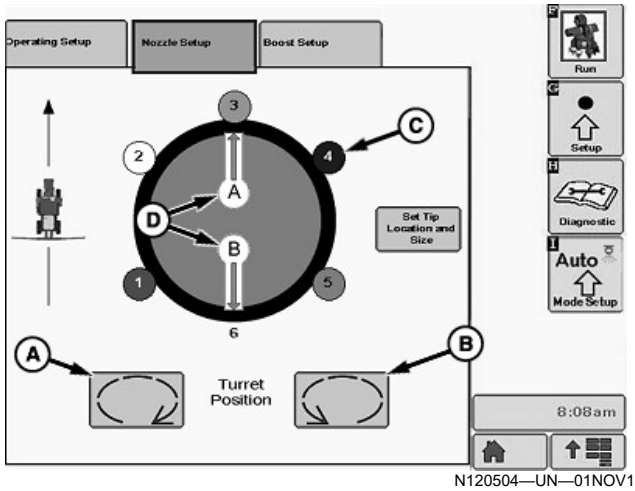
A—Setup Softkey
B—Nozzle Setup Tab

3. Select Setup softkey (A).
4. Select Nozzle Setup tab (B).

BN55050,0000195-19-19APR18

Turret Orientation

NOTE: Changing turret orientation on the screen does not change the physical nozzle position. Turret orientation must be changed manually to match orientation on screen.



N120504—UN—01NOV16

A—Turret Orientation Clockwise
B—Turret Orientation Counterclockwise
C—Nozzle Indicator
D—Active Nozzle Indicator

Turret orientation buttons (A and B) allow you to change which nozzles the control unit operates as A and B.

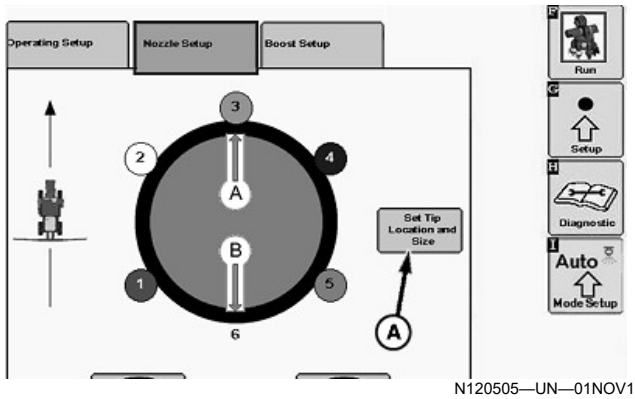
Turret diagram displays which nozzles (C) are entered for each location (See Spray Tip Setup in this section). Active nozzle indicators (D) show what nozzles solution flows through when activated.

Select Turret Orientation buttons to match displayed nozzle locations with physical nozzle locations.

BN55050,0000196-19-18APR18

Spray Tip Setup

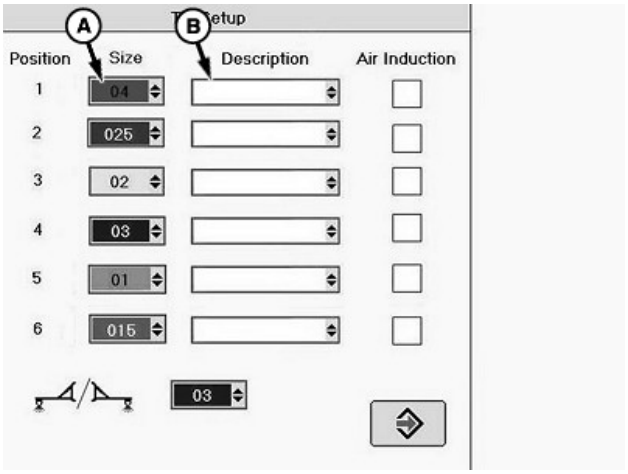
NOTE: Enter spray tip information for spray tips installed to the corresponding positions on nozzle bodies.



N120505—UN—01NOV16

A—Set Tip Location and Size Button

1. Select Set Tip Location and Size button (A)



N136980—UN—19APR18

A—Size Drop-Down
B—Description Drop-Down

2. Select Size drop-down (A).
3. Select spray tip size installed in that position.
4. Select Description drop-down (B).

NOTE: Descriptions must be manually entered before being selected. A limited number of descriptions are saved for quick access.

If no new descriptions can be entered then an existing description must be deleted before entering a new description.

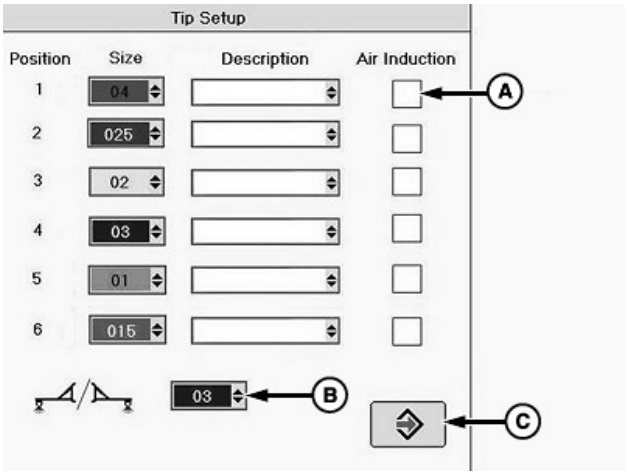
When the spray tip is changed for a position the description must be selected to match. Descriptions are not populated automatically when a tip size is selected.

5. Select the appropriate description for the installed spray tip.

   If the desired description is not entered perform the following:

   a. Select New from the drop-down.
   b. Enter desired description.
   c. Select the enter button on the keyboard to save the description.

NOTE: Air induction tips are not compatible with pulsing modes. Use only when pulsing is disabled.



N136981—UN—19APR18

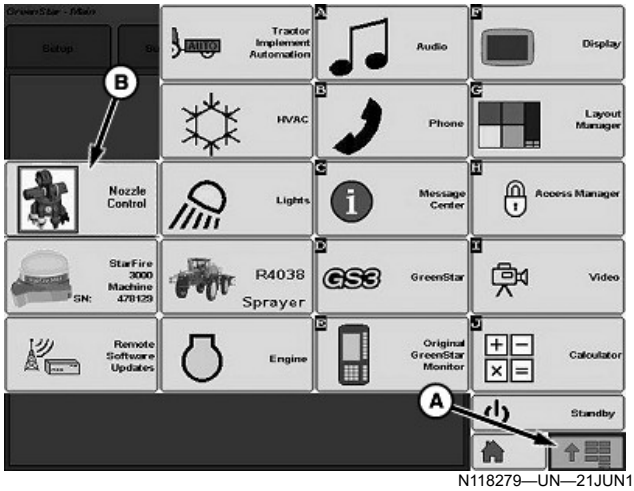
A—Air Induction Checkbox
B—Fence Row Nozzle Drop-Down
C—Enter Button

6. Select Air Induction checkbox (A) if applicable to the installed spray tip.
7. Repeat procedure for remaining spray tips.
8. Select fence row nozzle drop-down (B).
9. Select spray tip size installed to the fence row nozzles.
10. Select Enter button (C) to save and return to previous page.

BN55050,0000197-19-18APR18

Boost Setup Tab

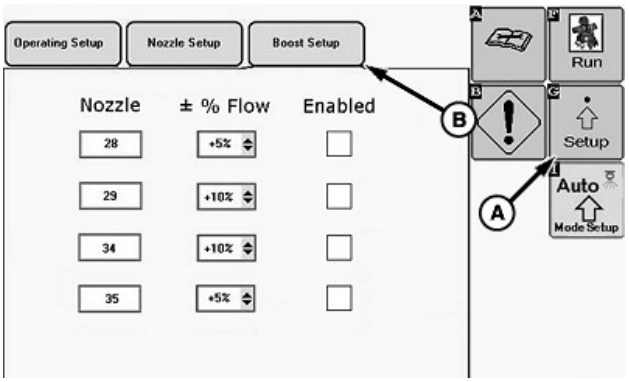
Set up Boost range for use with prescription application procedures.



N118279—UN—21JUN16

A—Application Menu Button
B—Nozzle Control Application

1. Select Application Menu button (A).
2. Select Nozzle Control application (B).



N137015—UN—01JUN18

A—Setup Softkey
B—Boost Setup Tab

3. Select Setup softkey (A).
4. Select Boost Setup tab (B).

BN55050,0000198-19-01JUN18

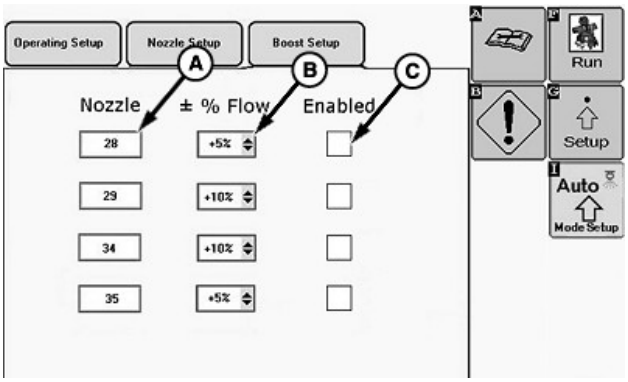
Boost Setup

The boost feature allows operator specified nozzles to apply a higher or lower rate than the rest of the nozzles. Up to six nozzles are available and can be set up for any location on the boom. Nozzles cannot be selected more than once. Boost range available is -25 percent to +25 percent of the selected target rate in 5 percent increments.

Number one nozzle is the left-hand most nozzle on the boom not including fence row nozzles. View Nozzle Control Run Page to determine the number of each sections beginning nozzle.

The following are examples of when boost is used:

- Higher rates are desired around outside of field
- Higher rates are desired in wheel tracks
- Lower rate is desired when applying near sensitive crops or plants



N120510—UN—01NOV16

A—Nozzle Input Box
B—Flow Percentage
C—Enabled Checkbox

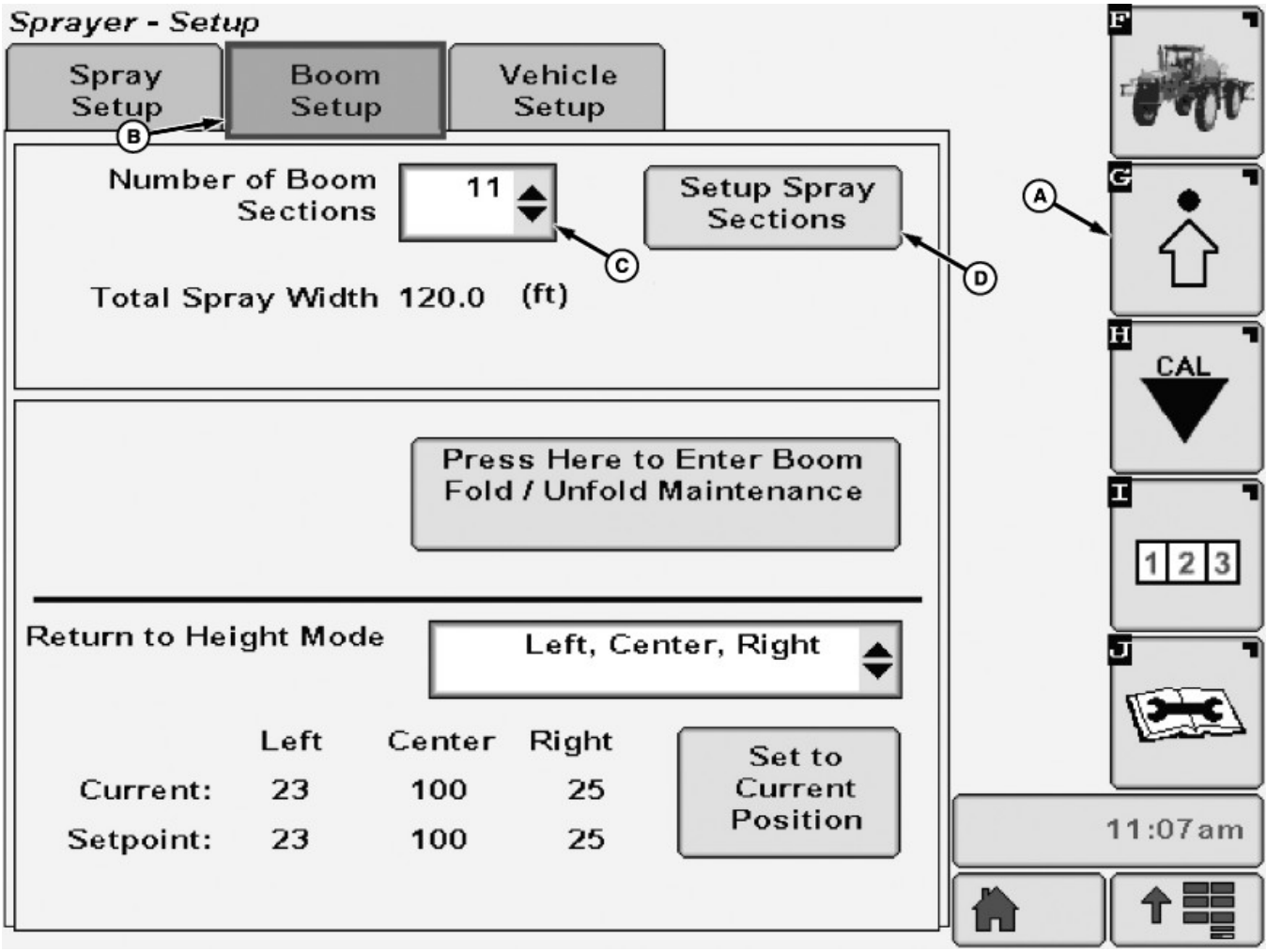
1. Select nozzle input box (A).
2. Enter desired nozzle number and select Enter button to confirm.
3. Select flow percentage (B) and select desire boost level.
4. Select enabled checkbox (C) to enable boost for the specified range.

CS12167,00008E6-19-20MAR17

Spray Section Setup

Spray sections can be customized to include various numbers of nozzles. Sections can contain only one nozzle or several. All machines can be set up with 11 sections regardless of width or factory configuration. Perform the following to set up the number of sections and number of nozzles per section.

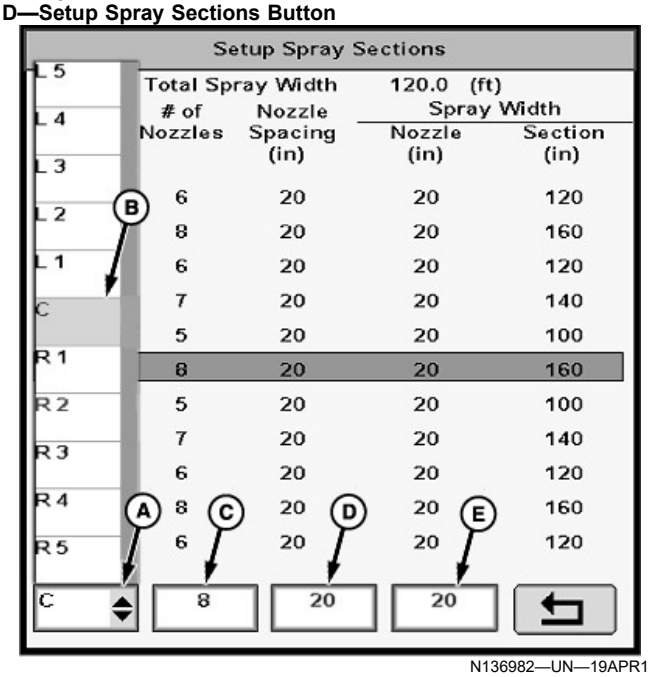
Sections cannot be set up for band spraying. Do not turn nozzle bodies to an OFF position to obtain a wider nozzle spacing. Nozzle Control Unit does not apply an accurate rate when nozzles have been turned off manually.



N101914—UN—08APR13

A—Setup Softkey
B—Boom Setup Tab
C—Input Box
D—Setup Spray Sections Button

1. Select the Setup softkey (A) to view the setup menu.
2. Select the Boom Setup tab (B).
3. Select each input box (C) next to Number of Boom Sections to be changed and enter a new value using pop-up keyboard. Select the Enter button to accept new value.
4. Press Setup Spray Sections button (D). The Setup Spray Sections screen appears.



N136982—UN—19APR18

A—Drop-down Box

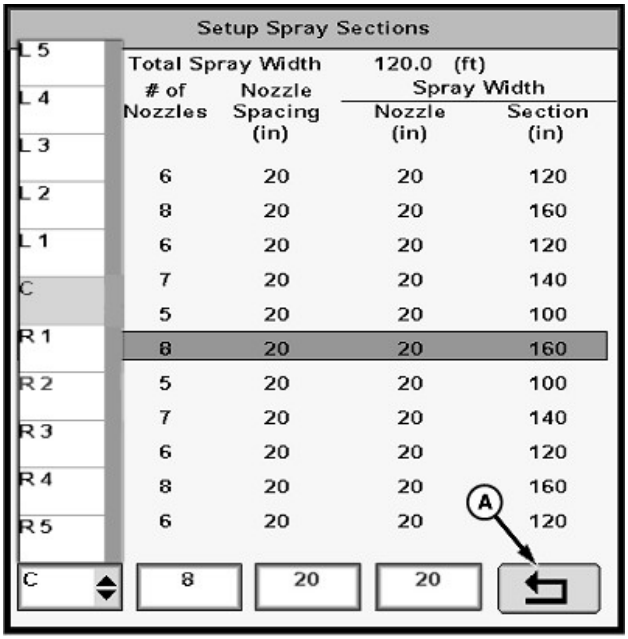
B—Drop-down Box Menu
C—Input Box
D—Input Box
E—Input Box

5. Select drop-down box (A) below Section # and select section to change from the drop-down box menu (B).
6. Select each input box (C-E) to be changed and enter a new value using pop-up keyboard. Select the Enter button to accept new value. (Repeat for each section on boom.)

NOTE: Nozzle spray width is equal to nozzle spacing. Refer to back side of the nozzle tip calculator to determine effective tip spray width.

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

7. Verify total number of nozzles entered is equal to the number of nozzles installed.



N136983—UN—03MAY18

A—Enter Button

8. Select the Enter button (A) to accept new values.

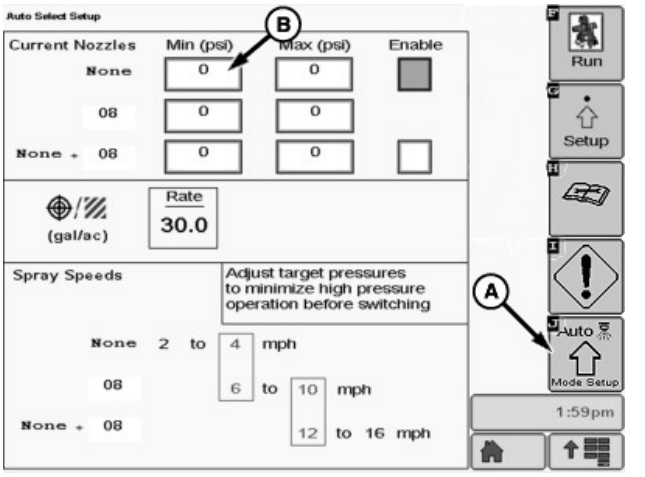
BN55050,0000199-19-18APR18

Automatic Nozzle Selection Setup

When the active nozzle selection is set to Auto Select then the feature must be set up in order to achieve the desired results. The following items must be set up correctly for Auto Select to be enabled:

- Nozzle pulsing set to OFF
- Nozzle body turret in separate flow position (1, 2, or 3 in the front position)
- Spray tips setup for both front and rear turret position
- Rate-based application selected

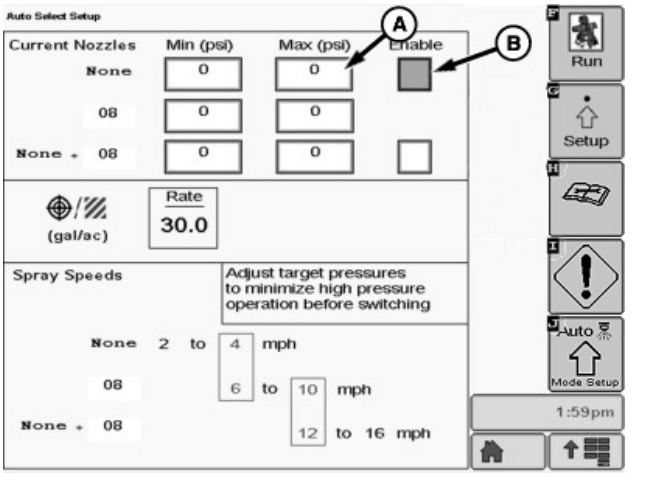
NOTE: For the best results when using automatic nozzle selection ensure that the larger spray tip is not more than double the size of the smaller tip. For example, use an 03 tip with an 06.



N136984—UN—19APR18

A—Automatic Mode Setup Softkey
B—Minimum Pressure Input Box

1. Select automatic mode setup softkey (A).
2. Set minimum application pressure. Ensure selected pressure provides the desired pattern from spray tips.
   a. Select minimum pressure input box (B).
   b. Enter desired pressure using pop-up keypad.
   c. Select the enter button to save pressure.
   d. Repeat for remaining spray nozzles.
3. Set maximum application pressure. Ensure selected pressure does not result in over-application of product.



N136985—UN—19APR18

A—Maximum Pressure Input Box
B—Check Box

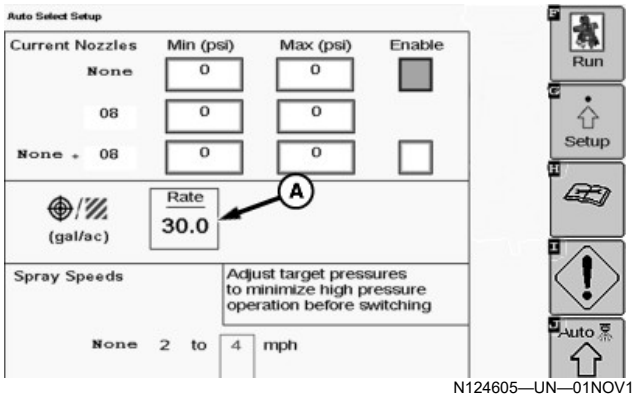
a. Select maximum pressure input box (A).

b. Enter desired pressure using pop-up keypad.

c. Select enter button to save pressure.

d. Repeat for remaining spray nozzles.

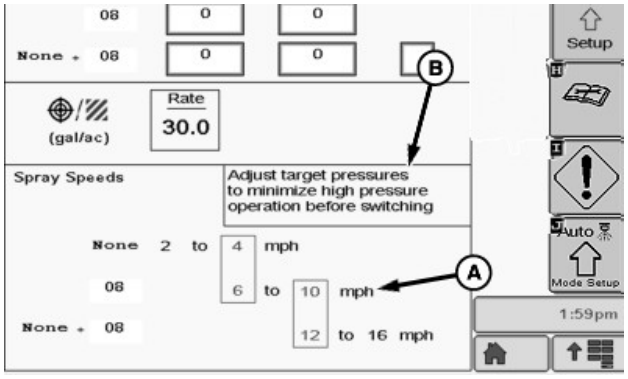
4. Enable the desired nozzles for use by selecting the check box (B). Selecting the check box allows the control unit to use that spray tip or combination spray nozzles during the application.



N124605—UN—01NOV16

A—Selected Rate Preset

The selected rate preset (A) is outlined and displayed on the setup page. Application rate preset must be changed using the dial on the CommandARM™.



N124606—UN—01NOV16

A—Spray Speeds
B—Note

Calculated spray speeds (A) are displayed at the bottom of the screen. A speed range is displayed for each spray tip and both spray tips combined using the maximum and minimum pressures previously entered.

An overlap in speeds should occur between the highest speed for a smaller tip and the lowest speed for a larger tip or combination of tips. This overlap allows the machine to switch between all tips and tip combinations without over or under applying. A note (B) is displayed on the screen if no overlap is present. Speed is also displayed in red if no overlap is present. Adjust target pressures to correct this condition.

BN55050,000019A-19-19APR18

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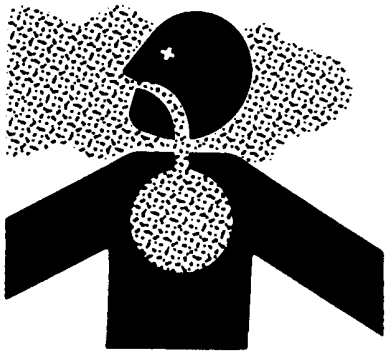
Operating Nozzle Control

Service and Operate Chemical Sprayers Safely

TS272—UN—23AUG88



TS220—UN—15APR13

Chemicals used in agricultural sprayers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

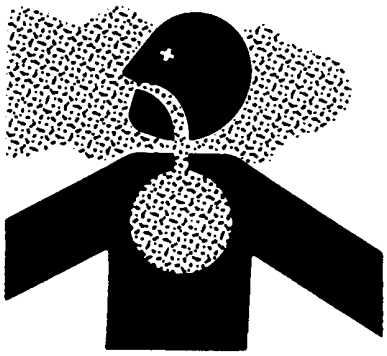
Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. (See 'Handle agricultural chemicals safely' found in the Safety Section.)
- Fill, flush, calibrate, and decontaminate sprayer in an area where runoff will not reach ponds, lakes or streams, livestock areas, or gardens, or near other people.
- Keep children away from the chemicals, chemical solutions, and rinsates.
- If spray or chemical concentrate contacts skin, hands, or face, wash immediately with soap and water.

  If spray or chemical concentrate gets into eyes, flush immediately with water.
- If nozzle clogs or system malfunctions, stop engine and relieve spray pressure from system.
- Do not place nozzle tips or other components to the mouth to clear obstructions. Keep spare tips on hand for replacement.
- Minimize risk of spray drift.
  - Use large nozzle tips operated at lower pressures
  - Do not operate solution delivery system at pressures exceeding 345kPa (3.5 bar) (50 psi).
  - Do not spray when winds exceed 16 km/h (10 mph).
  - Do not spray when wind is blowing towards a nearby sensitive crop, garden, or populated area.
- Properly dispose of unused chemicals, flushing solution, and empty chemical containers.
- Decontaminate equipment used in mixing, transferring, and applying chemicals after use.

DX,WW,CHEM02-19-05APR04

Avoid Exposure To Chemicals



TS220—UN—15APR13

TS272—UN—23AUG88

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

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

To reduce risk of chemical exposure:

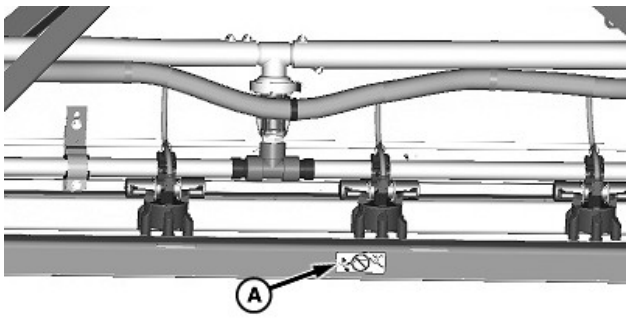
- Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer's label
- Allow only trained, certified applicators to apply chemicals
- Always close the windows and doors during application

- Verify that John Deere activated carbon filters, or appropriate substitutes, are installed at all times (see Checking and Replacing Cab Air Filters in the Cab and Air Conditioning section)
- 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
  - U.S. Environmental Protection Agency (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 reentering cab, remove personal protective equipment used to handle chemicals, including pesticides, and store equipment in accordance with EPA guidelines to prevent contaminating cab

CS12167,000073C-19-02APR15

Machine Informational Decals

Component Wash Decal



N127958—UN—06JAN17

A—Decal

Decal A:

IMPORTANT: Do not pressure wash these components. Use normal water pressure less than 345 kPa (3.45 bar) (50 psi).

CS12167,00008E9-19-06JAN17

ExactApply™ Strainer Requirements

IMPORTANT: 50 and 80 mesh strainers are installed in the pressure plumbing of the machine. These strainers must remain installed during all applications to prevent plugging of spray tips and solenoid valves.

A minimum 20 mesh strainer is required in the machine fill lines when equipped with ExactApply™. Machines come equipped with a 20 mesh strainer in the fill line from the side load station.

If the machine is equipped with front fill then a 20 mesh strainer must be used when filling to remove any large contaminates in the solution. The strainer can be installed on the machine or located in the nurse tank fill line.

If machine is equipped with Load Command™ strain solution with a 20 mesh strainer before it is loaded to the nurse vehicle.

CS12167,00009E4-19-01MAY17

Spray Tip Selection

Each spray tip type is designed to produce a specific spray pattern and are offered in different sizes to achieve the desired application rates. See the Wet System section in your machine operator's manual for more information each spray tip type.

Some spray tips create an angled spray pattern. Do not alternate the direction of the angle when using these tip types when using A only, B only, and A + B modes. Skips can occur when operating in these modes and the angles directions are alternated.

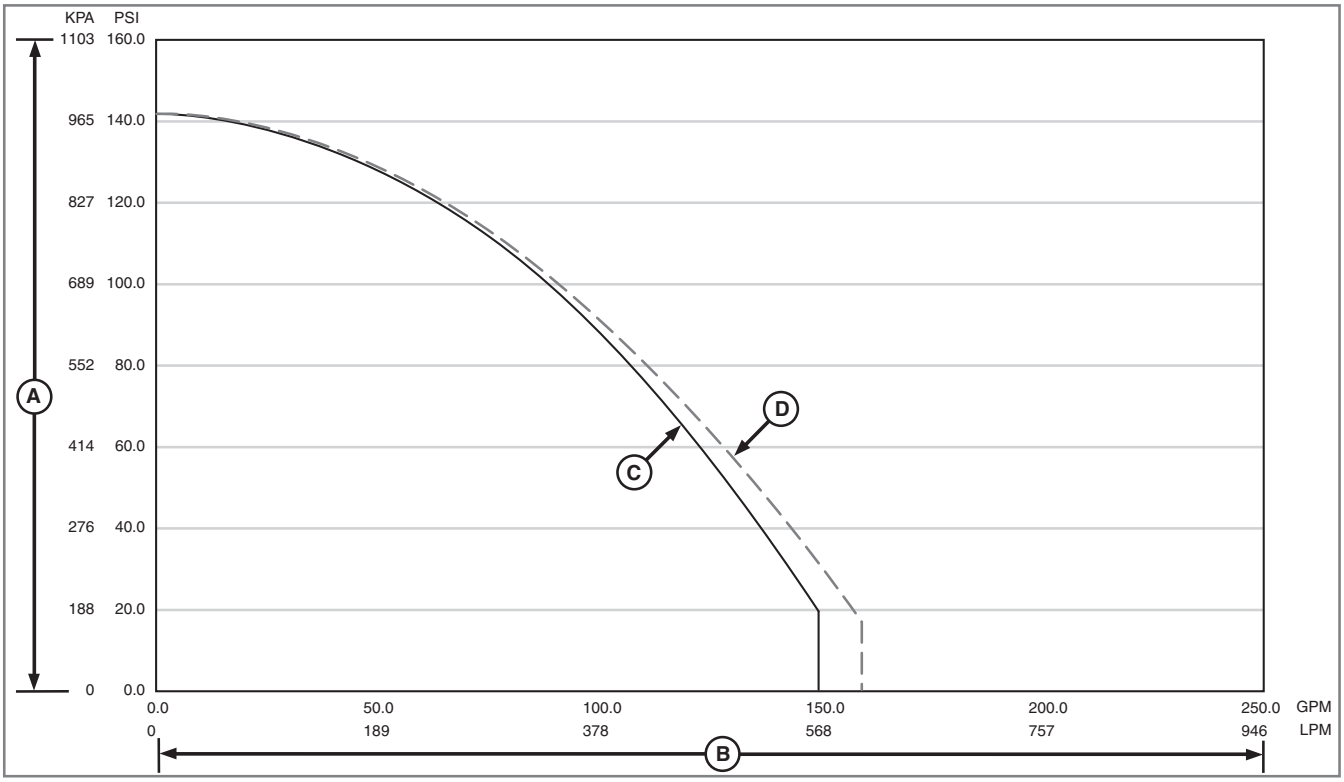
Angled spray pattern tips can be alternated **ONLY** when operating in Combined A + B mode.

The nozzle calculator is only accurate if one spray tip is being used without nozzle pulsing.

BN55050,0000293-19-07JUN18

ExactApply is a trademark of Deere & Company
Load Command is a trademark of Deere & Company

Standard Flow System Characteristics—Flow Rate vs. Pressure



Liquid System Performance

A—System Pressure
B—System Flow
C—Single Nozzle Mode
D—Combined A + B Mode

NOTE: Boom flow rate is not recommended under 15 L/min (4 gal/min) due to system limitations.

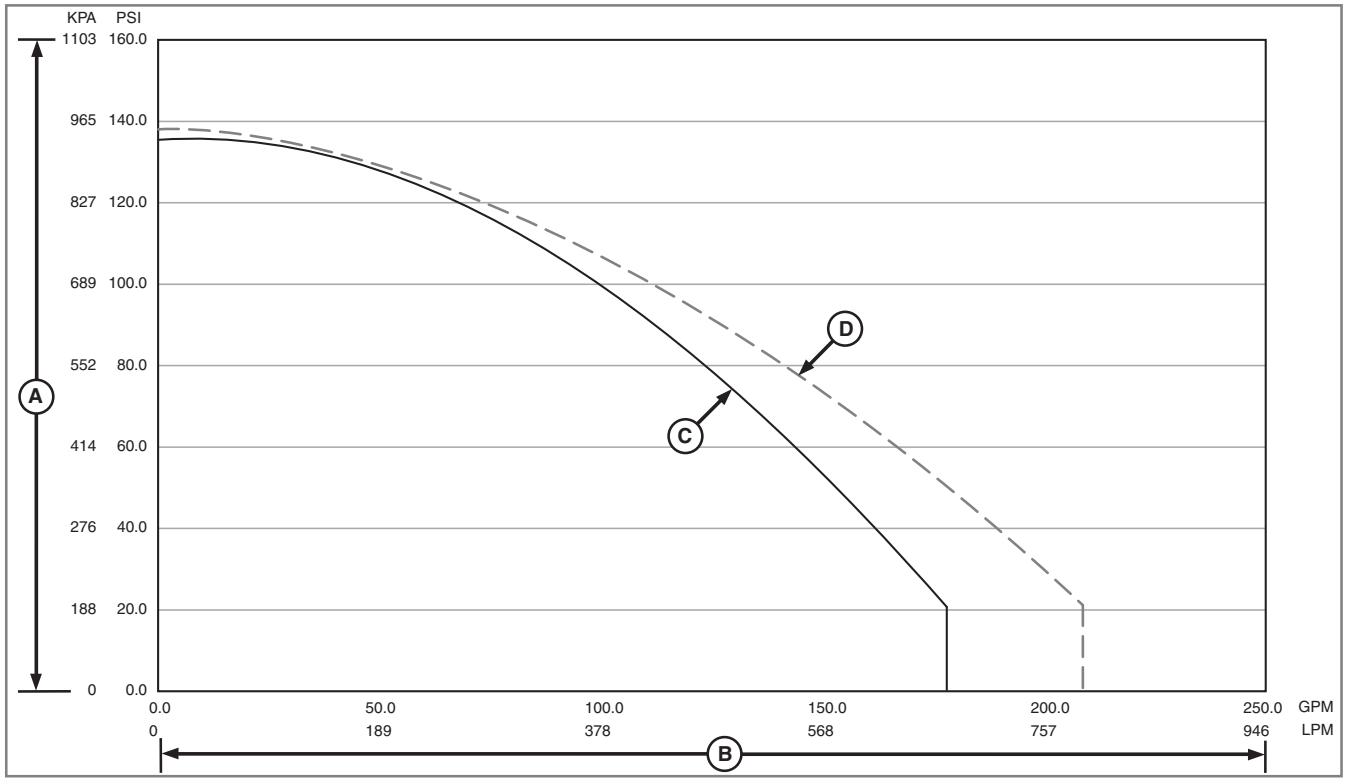
The curves show the maximum output. They are shown with agitation off. Using agitation reduces maximum output.

The test system was equipped with both 50 and 80 mesh pressure strainers.

Flow curves shown represent a non-pulsing condition, allowing for maximum flow. Nozzle pulsing reduces flow rates.

CS12167,0000A02-19-12APR17

High Flow System Characteristics—Flow Rate vs. Pressure



Pressure vs. Flow

A—System Pressure
B—System Flow
C—Single Nozzle Mode
D—Combined A + B Mode

NOTE: Boom flow rate is not recommended under 15 L/min (4 gal/min) due to system limitations.

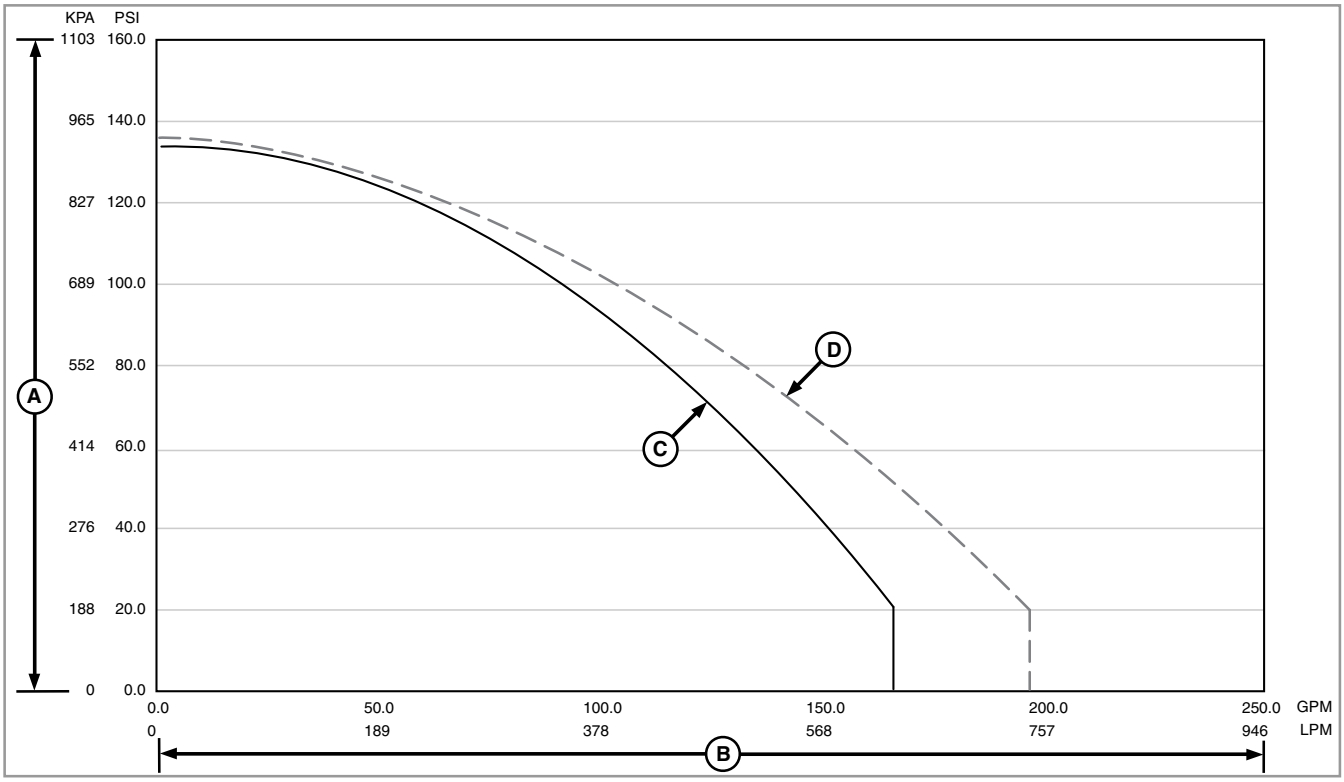
The curves show the maximum output. They are shown with agitation off. Using agitation reduces maximum output.

The test system was equipped with both 50 and 80 mesh pressure strainers.

Flow curves shown represent a non-pulsing condition, allowing for maximum flow. Nozzle pulsing reduces flow rates.

CS12167,0000A03-19-12APR17

High Flow System Characteristics with Nitrogen—Flow Rate vs. Pressure



Liquid System Performance

A—System Pressure
B—System Flow
C—Single Nozzle Mode
D—Combined A + B Mode

NOTE: Boom flow rate is not recommended under 15 L/min (4 gal/min) due to system limitations.

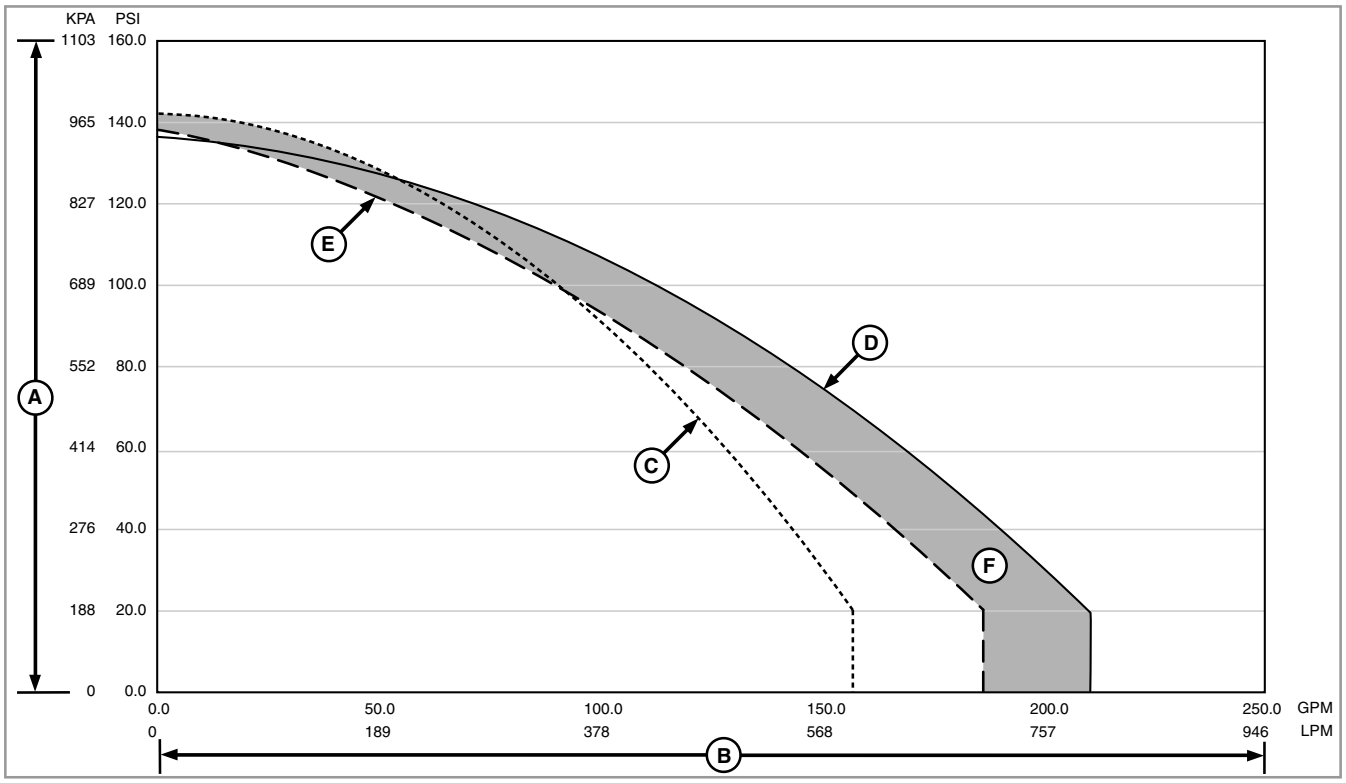
The curves show the maximum output using 28% liquid nitrogen. They are shown with agitation off. Using agitation reduces maximum output.

The test system was equipped with both 50 and 80 mesh pressure strainers.

Flow curves shown represent a non-pulsing condition, allowing for maximum flow. Nozzle pulsing reduces flow rates.

CS12167,0000A07-19-12APR17

Operate System with Direct Injection Installed

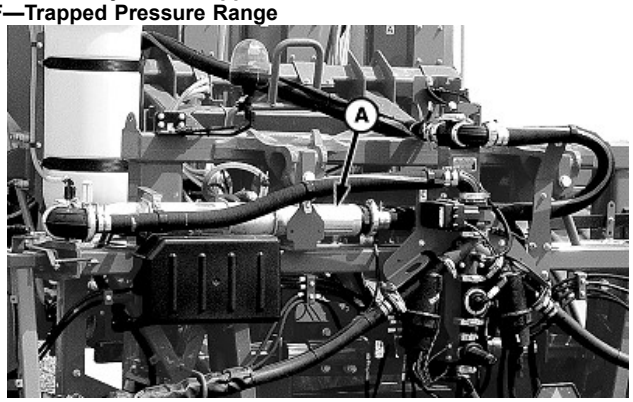


N129728—UN—04MAY17

Direct Injection Trapped Pressure

A—System Pressure
B—System Flow
C—Standard Flow with Combined A + B Mode
D—High Flow with Combined A + B Mode
E—Direct Injection Trapped Pressure
F—Trapped Pressure Range

ExactApply™ can be used in combination with a Direct Injection (DI) system. For high flow usage with DI, the high-pressure relief kit BKK11360 should be installed to prevent trapped pressure. The system can trap pressure above the 1034 kPa (10.34 bar) (150 psi) working range of the nozzles. In this condition, the nozzle solenoids may not open. System pressure can be relieved using the strainer drain valves on the boom or by opening a fence row nozzle momentarily (if equipped). Conditions for this scenario are indicated by the shaded area (F) of the graph.



N129176—UN—05APR17

Machines without High-Pressure Relief

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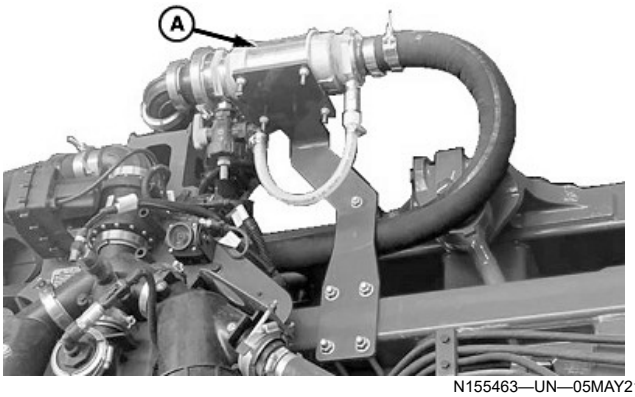


N155463—UN—05MAY21

Machines Equipped with High-Pressure Relief

A—Check Valve

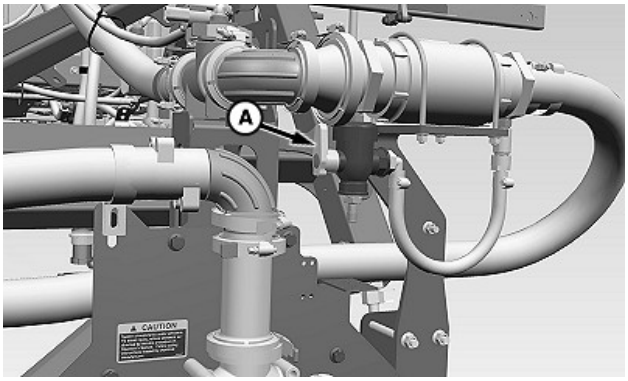
When a flow rate or pressure in the indicated range is required and pressures are being trapped, the check valve (A) must be removed or bypassed when direct injection is not being used.

To perform a rinse procedure on machines equipped with Direct Injection and ExactApply™ high-pressure relief:

1. Unfold the boom and lower it to the lowest position.

NOTE: 40 psi or lower is the recommended pump pressure for the rinse procedure.

2. Ensure that the solution pump is ON at standby pressure.



N151448—UN—26MAY20

A—Rinse Valve

3. Open rinse valve (A) for 2—5 seconds to flush the relief line into a suitable container.
4. Return the rinse valve to the closed position.

BN55050,000058E-19-05MAY21

Auto System Prime

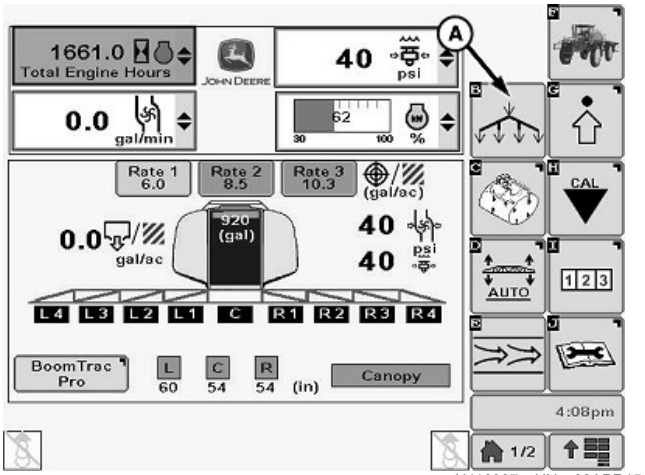
CAUTION: Spray system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves. Apply chemical solutions in an area where people, animals, vegetation, and water supply, and so on, cannot be contaminated.

CAUTION: Do not turn on the machine until you are sure that nobody is in the danger zone.

NOTE: If the number of nozzles in each section have been customized then priming is degraded.

Auto system priming is a sprayer feature that allows the operator to charge the solution system (and direct injection plumbing) with chemical or mixed solution so that the sprayer is ready to begin field spraying.

1. Unfold booms and lower center frame.
2. Verify that the direct injection pumps have been primed.
3. Set the direct injection pumps to ON.

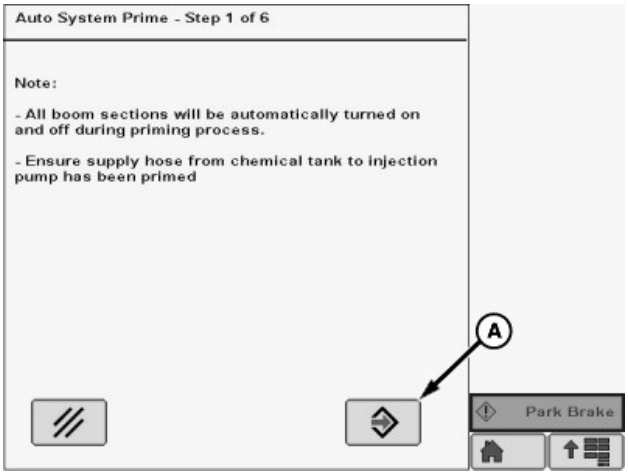


N116937—UN—02APR15

A—Auto Prime Softkey

4. Select Auto Prime softkey (A) from sprayer main page.

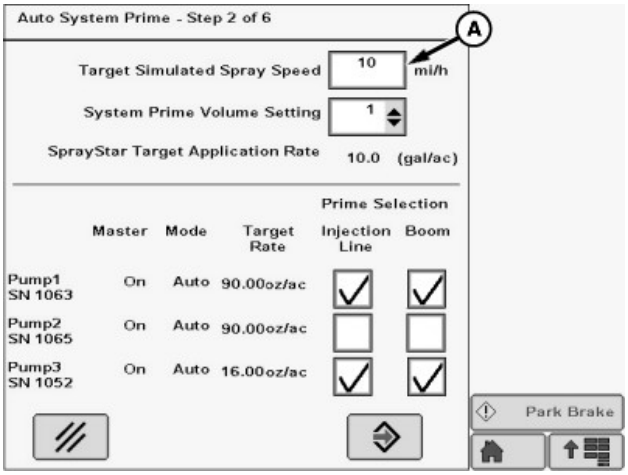
NOTE: All spray sections turn on automatically during Auto Prime process.



N94008—UN—07SEP11

A—Enter Button

5. Verify that conditions on screen have been met, then select Enter button (A) to continue to next step.

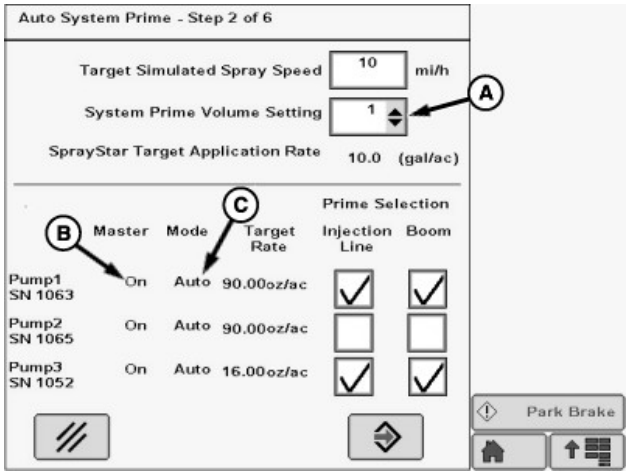


N136986—UN—19APR18

A—Target Speed Input Box

6. Enter a target spray speed from 10 through 20 miles per hour in the input box (A).

NOTE: Setting 3 is the default prime volume setting and selecting it should completely prime the system on any size of booms. Settings 1 and 2 each lower the priming volume. Settings 4 and 5 raise the priming volume.



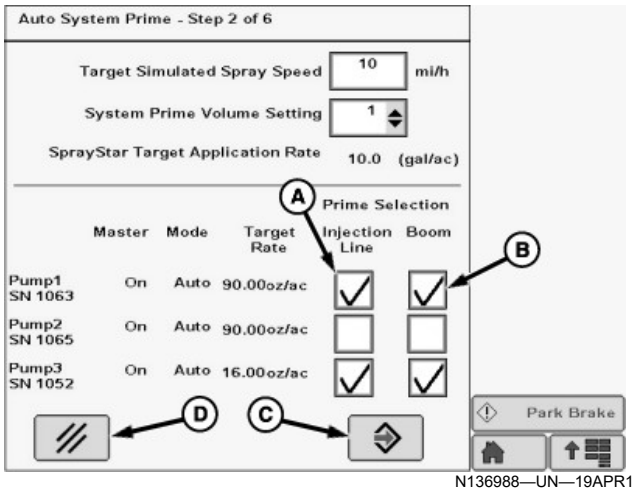
N136987—UN—19APR18

A—Drop-Down Menu
B—Pump Status
C—Pump Mode

7. Select a System Prime Volume setting three from drop-down menu (A).

NOTE: Pump status (B) under Master is On if the pump has been enabled or a red X if the pump is disabled.

Auto priming only works when injection pumps are set to Auto mode (C). If pumps are not set to Auto mode or machine is not equipped with direct injection, a red "X" is displayed.

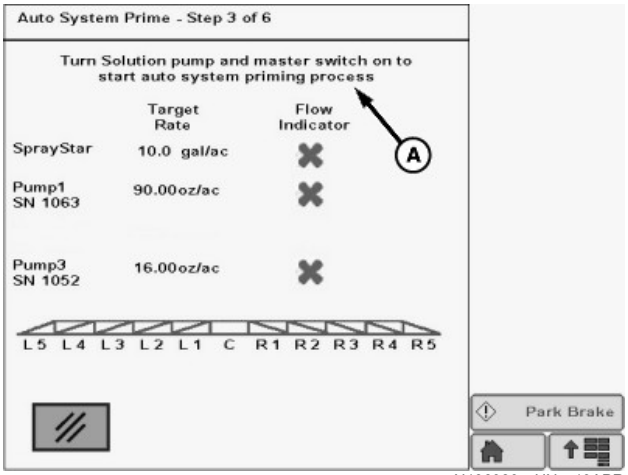


N136988—UN—19APR18

A—Check Box
B—Check Box
C—Enter Button
D—Cancel Button

8. Select the check box (A) for each injection pump to have its injection line primed out to the injection mixing module.
9. Select the check box (B) for each injection pump to have its output primed through the entire boom.
10. Press the enter button (C) to proceed or press (D) to cancel.

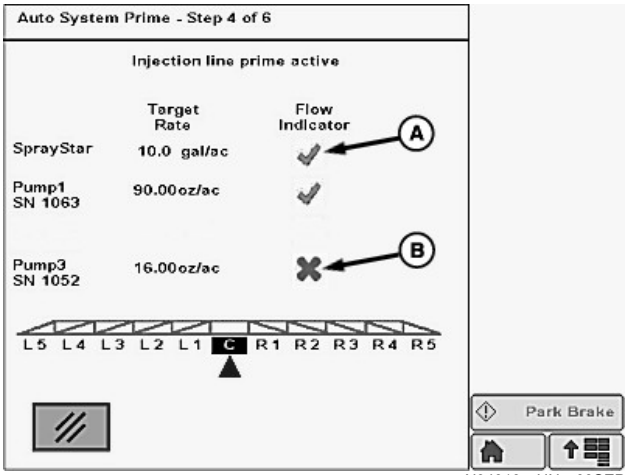
NOTE: Any pumps not selected for auto system priming show no flow during the process.



N136989—UN—19APR18

A—Instructions

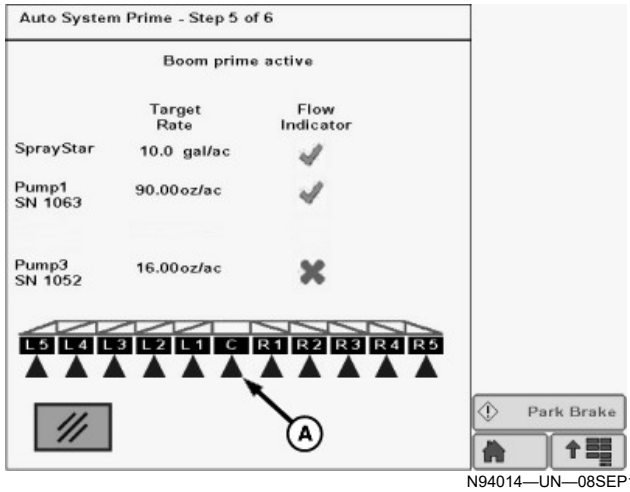
11. Follow instructions (A) on the screen to start the priming procedure.



N94013—UN—08SEP11

A—Flow Indicator
B—Flow Indicator

12. The injection line prime runs first. The flow indicator is a Green check mark (A) if flow is greater than zero. The flow indicator is a red X (B) if the flow rate is zero.
13. The Boom Prime runs next.



N94014—UN—08SEP11

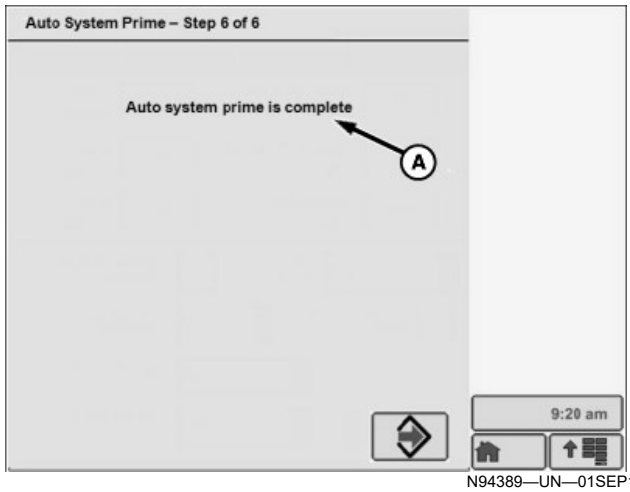
A—Spray Indicator

NOTE: Active or open spray sections are indicated with the standard blue indicator (A).

All sections automatically turn on and off, starting with center section and working out, during this procedure.

Approximate prime time for the injection line is 30-40 seconds.

Approximate prime time for the overall boom is 2 minutes.



N94389—UN—01SEP11

A—Auto System Prime Complete

14. Auto System prime complete (A) message shows on the display screen when prime is complete.
15. If active nozzle selection is A Only or B Only then select the remaining mode and repeat procedure. Reduced time is necessary to prime the remaining nozzle.

BN55050,000019B-19-22MAY18

Filling the Sprayer with Water

IMPORTANT: When filling the tank from open water, it is important not to put the hose into the water until there is suction from the system (pump functioning). When filling/rinsing is completed, first take the hose out of the water and then interrupt the suction (throttle back or switch off PTO). This process helps to prevent contamination of the surface water.

There are different tank filling methods. The first option is filling from the mains tap. A special mains (waterline) connection is available for this purpose. Additionally, a special hydrant connection is available.

The machine can also be filled using the pump with a filling hose. This will produce a high filling capacity and complies with the requirement of being able to rinse with clean water. The pump is self-priming. To fill, couple the filling hose to the external filling connection, verify that the main shutoff valve is in the closed position, and start the pump.

Other options are to fill the tank with water from a storage tank that is located higher or by means of a filling pump and external hydrant through the filling hole. When using an external hydrant, avoid any contact between the filling hose and the tank contents to prevent sucking back of the spraying liquid. Always keep the filling hose of a stationary filling unit above the spraying liquid and never put the hose into the spraying liquid.

Quality of Water

Always use water to dissolve chemicals. The use of mains water is preferable to spring water, surface water, or rain water. Water of which the composition is not known may have harmful effects on the functioning of the crop protection chemical and the machine. The water quality is of utmost importance to the spraying result. Below are the major demands of water used to dissolve crop protection chemicals. Some crop protection chemicals will decompose more quickly in water with a high pH value (alkaline water). Most products are stable at pH values ranging from 5.5 to 6.5. Spray the liquid as soon as possible after preparation. Never leave a filled tank overnight, if possible, because the crop protection chemicals may have decomposed too much the next day. Too high of a percentage of salts in the water may also cause problems, such as leaf burning and the formation of crystals (risk of blockage). Never spray with water of which the EC value (electrical conductivity) is greater than 1 (EC). The water temperature does not affect the result of the crop protection chemical, as long as this temperature is between 9°C (48°F) and 25°C (77°F). If necessary, consult your dealer of crop protection chemicals.

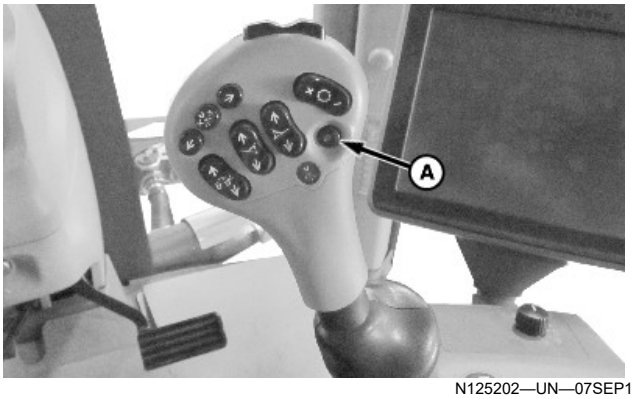
Electrical conductivity	Max. 50 mS/cm
pH	5.5—6.5
Hardness	Max. 10° D (Ca+Mg)
Chlorine	Max. 40 mg/L
Manganese	Max. 1 mg/L
Methane gas Carbon dioxide gas Sulphuric gas	Must not be present: aggressive
Iron	Max. 1 mg/L
Hydrogen carbonate	Min. 50 mg/L
Nitrate, nitrite	0 mg/L
Ammonium	Max. 2 mg/L
Potassium permangate	Max. 15 mg/L
Sulphate	Max. 150 mg/L

Any reactions of the various crop protection chemicals with each other (often of different manufacturers) cannot always be predicted. It is strongly recommended to not mix different crop protection chemicals. Always read the instructions on the packaging of the crop protection chemicals and consult the dealer of these chemicals.

BN55050,0000589-19-26APR21

Operate Nozzle Lights

1. Set up nozzle lights. (See Nozzle Light Setup in System Setup section.)



N125202—UN—07SEP16

A—Master Spray Switch

2. Press master spray switch (A) to begin application. Nozzle lights activate in the previously selected mode.

NOTE: Nozzle lights turn off when nozzles are not spraying.

Nozzle lights are also used to indicate nozzle bodies with faults present. Fault indication occurs when the master spray switch is ON or the operator selects the fault display button on the display. Nozzle lights flash at a slower rate than the strobe setting to indicate a hardware fault. Software faults are not indicated.

Nozzle lights indicate the fault until disabled by the operator or two minutes has elapsed since the fault occurred.

Fault indication is enabled for all nozzles at all times regardless of section control, IBS, or CommandARM™ section switch status.

NOTE: Nozzle light and lens are not replaceable. The complete nozzle body must be replaced if the light burns out.

CS12167,0000A37-19-03MAY17

Before Field Operation

NOTE: Verify that machine is properly prepared for field operation. Check the following items before operating:

CAUTION: Do not turn on the machine until you are sure that nobody is in the danger zone.

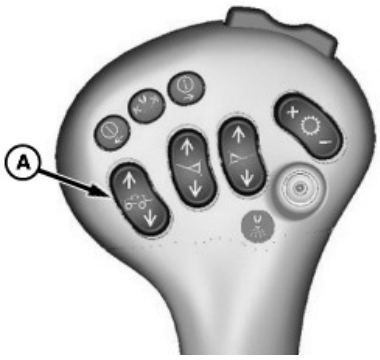
- All maintenance has been performed.
- Correct nozzle tips are installed and set for the desired spray pattern and row spacing. (See Wet System section for proper nozzle tip and row spacing selection.)
- Nozzle control is correctly programmed with the following: (See System Setup section to program information properly.)
  - Active Nozzle Selection
  - Nozzle Pulsing
  - Target Pressure
  - Nozzle Lights
  - Turret Orientation
  - Spray Tip Size and Location
  - Rate Meters
  - Boost
- Perform the Boom Air Bleed Process in Recommendations For Eliminating Air from Solution System in the Wet system section.
- Operator is familiar with all machine controls, their functions, and safe operations. (See Chassis and Safety sections.)

CS12167,0000833-19-06JAN17

Field Operation

CAUTION: Do not turn on the machine until you are sure that nobody is in the danger zone.

NOTE: Plungers do not open properly when operating above 965.3 kPa (9.65 bar) (140 psi) when a low voltage condition occurs.



N67612—UN—16SEP04

A—Raise/Lower Switch

1. Unfold boom and press raise/lower switch (A) to position boom at desired operating height.
2. Set up the display for your particular application.
3. Verify that tank is loaded with solution.

NOTE: Solution pump will automatically shutoff after a brief time when no solution flow is detected to prevent overheating and damage to seals.

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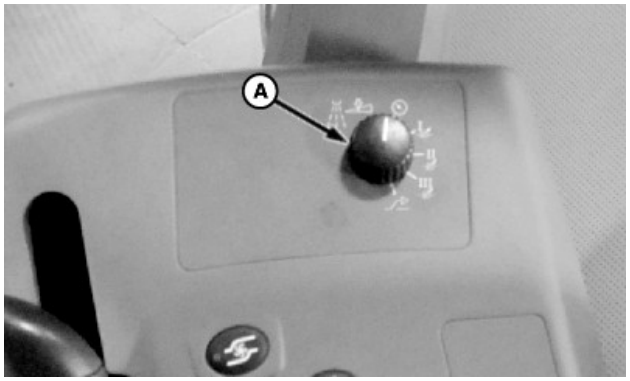
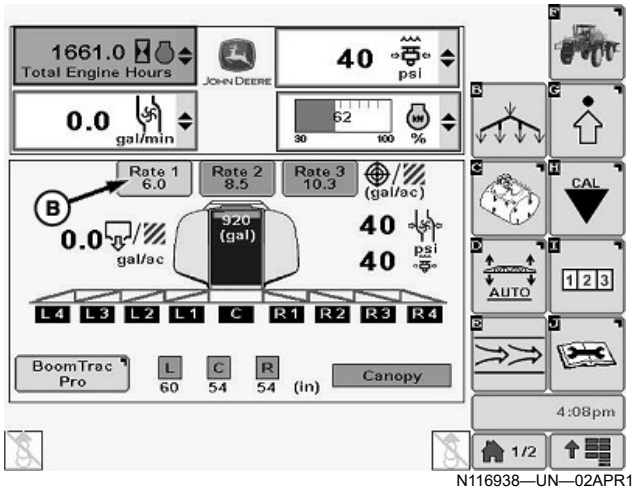
N98755—UN—26SEP12

A—Solution Pump Switch

4. Push solution pump switch (A) to engage solution pump.
5. View spray operation display on the screen.



N98782—UN—24APR13



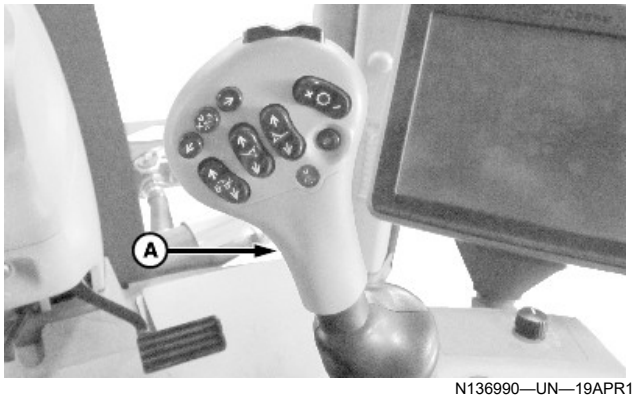
N116938—UN—02APR15

A—Rate Selection Switch
B—Selected Rate

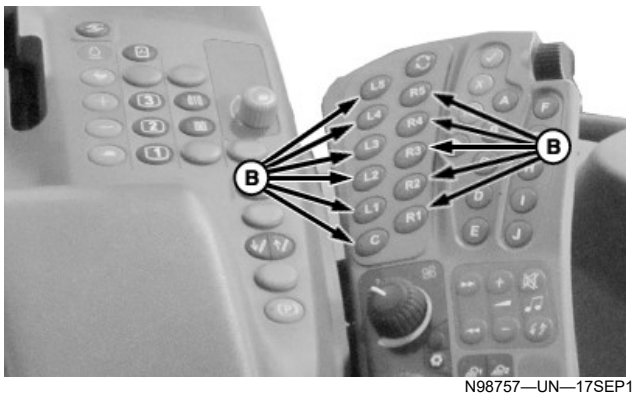
6. Turn rate selection switch (A) to desired application rate (1, 2 or 3) or to the manual pressure setting (MAN).

NOTE: Rate selected (B) is highlighted on the screen.

Only use manual pressure mode with fixed pulsing or pulsing turned off.



N136990—UN—19APR18



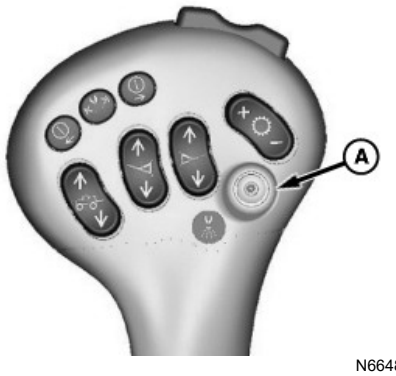
N98757—UN—17SEP12

11 Boom Section Switches (90-120 ft Boom)

A—Multi-Function Lever
B—Boom Section Switches

7. Push multi-function lever (A) slowly forward to start forward motion.
8. Press boom section switches (B) to select desired on-off position for each section.

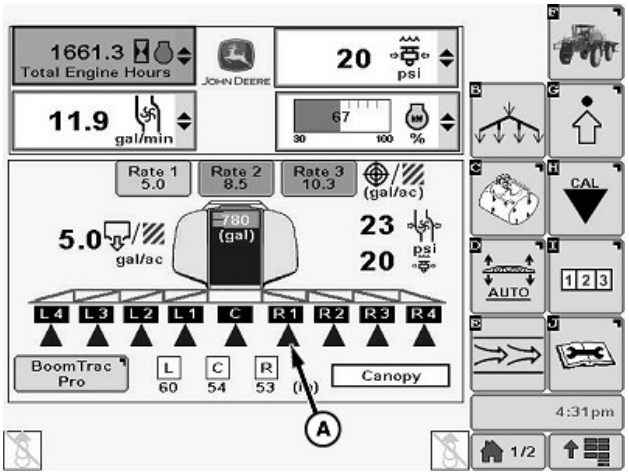
NOTE: Enabled booms have black fill color indication on the display.



N66488—UN—15SEP04

A—Master On-Off Switch

9. Press the master on-off switch (A) to start spraying operation.



N137007—UN—19APR18

N137006—UN—19APR18

A—Cone
B—Master Spray On-Off Indicator

NOTE: Actively spraying boom sections have cone (A) indication under the boom section on the display.

The master Spray on-off indicator (B) is illuminated when Master On switch is activated on the multi-function lever.

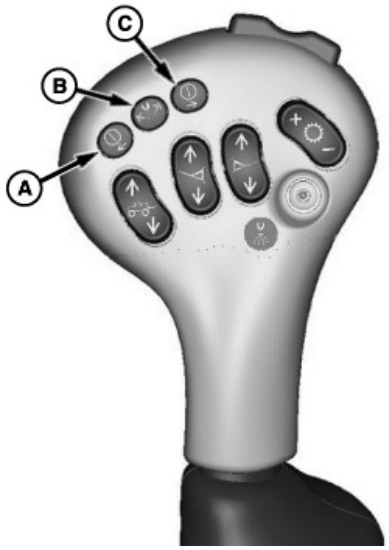
10. At the row end, press the master on-off switch to stop spraying. All other switches can remain in preset positions.
11. When aligned with the next row, press master on-off switch to resume spraying.

BN55050,000019C-19-19APR18

Operate Indexed Boom Section (IBS) Switching

This machine is equipped with Indexed Boom Section (IBS) switching. This gives the operator another way to shut off boom spray sections in sequence without removing your hand from the multi-function lever. This function is useful when working with point rows and waterways. IBS buttons control the sections as configured by the operator on machines equipped with the nozzle control system.

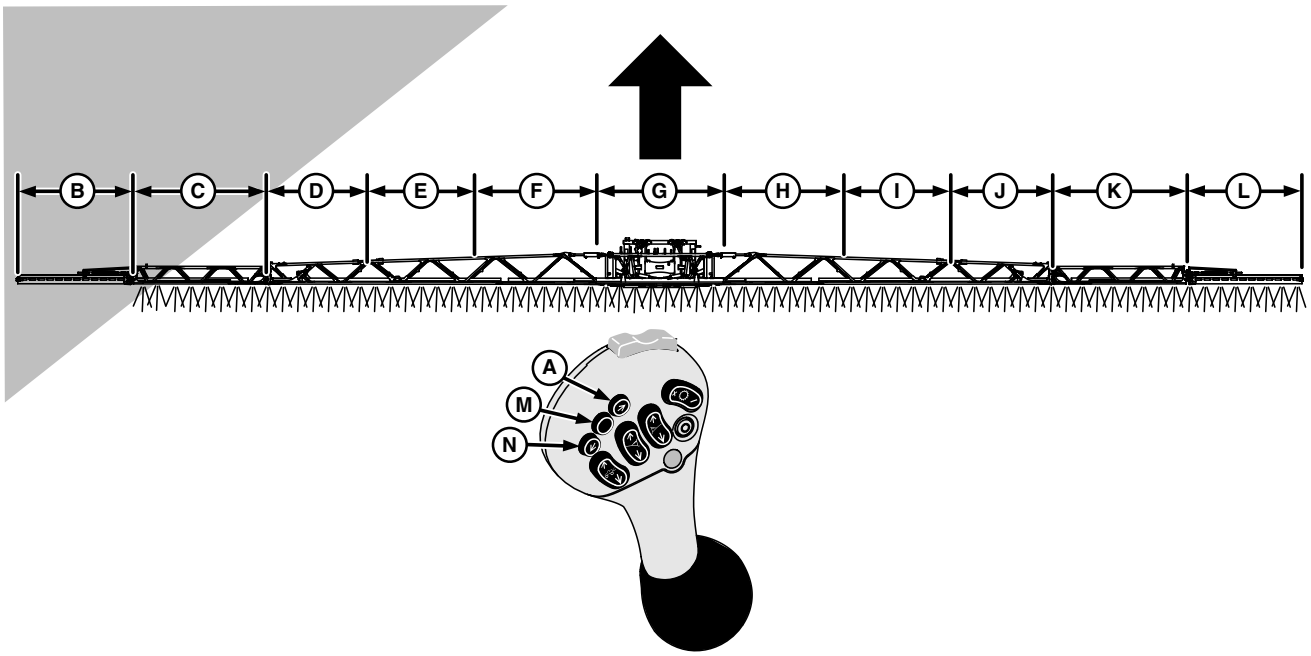
There are three buttons they operate as follows:



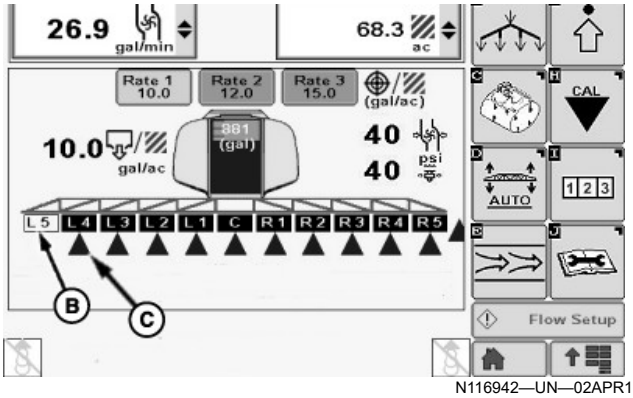
N63297—UN—15JUL03

A—IBS Left Button
B—IBS Reset Button
C—IBS Right Button

- Use IBS Left Button (A) to sequentially shut off individual boom sections starting at right-hand end of boom moving to left.
- Use IBS Reset Button (B) to restart all shutoff sections that are enabled.
- Use IBS Right Button (C) to sequentially shut off individual boom sections starting at left-hand end of boom moving to right.



N102414—UN—25FEB13



N116942—UN—02APR15

A—IBS Right Button
B—"L5" Boom Spray Section
C—"L4" Boom Spray Section
D—"L3" Boom Spray Section
E—"L2" Boom Spray Section
F—"L1" Boom Spray Section
G—"C" (Center) Boom Spray Section
H—"R1" Boom Spray Section
I—"R2" Boom Spray Section
J—"R3" Boom Spray Section
K—"R4" Boom Spray Section
L—"R5" Boom Spray Section
M—IBS Left Button
N—IBS Reset Button

EXAMPLE: If you are coming upon an angled waterway and you would like to shutoff sections in sequence from left to right, press and release IBS right button (A) once to shutoff left-hand outer boom section (B) (L5 on display). Sections disabled by the IBS feature have a white background with an outline box. Next, press and release button (A) again to shutoff section (C) (L4 on display). Continue to press and release the button (A) to shutoff remaining sections across the entire boom.

Once all sections have been shutoff, press and release button (A) again to turn **on** section (B), then (C) and so on.

If only a few sections have been turned off using button (A), you can turn them back on in sequence one at a time using button IBS left button (N). You can also turn them all back on at once using IBS reset button (M).

Sections can be shut off from the right-to-left using button (N).

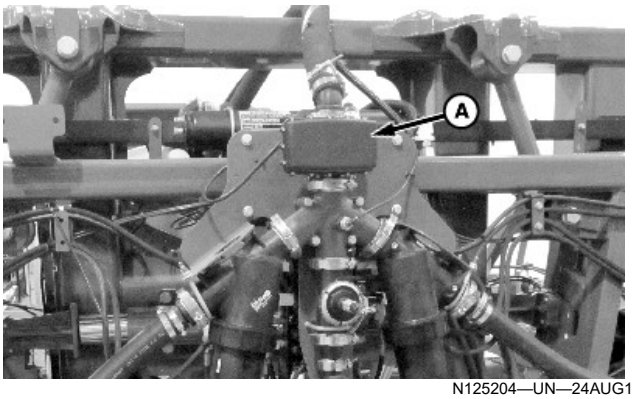
NOTE: The fence row nozzles will shut off when the outermost boom sections are switched off.

If a boom section is disabled using the boom section switch on the CommandARM™ it will be ignored when turning boom sections on-off using IBS function.

BN55050,000019D-19-19APR18

CommandARM is a trademark of Deere & Company

Operate Boom Isolation Valve



N125204—UN—24AUG16

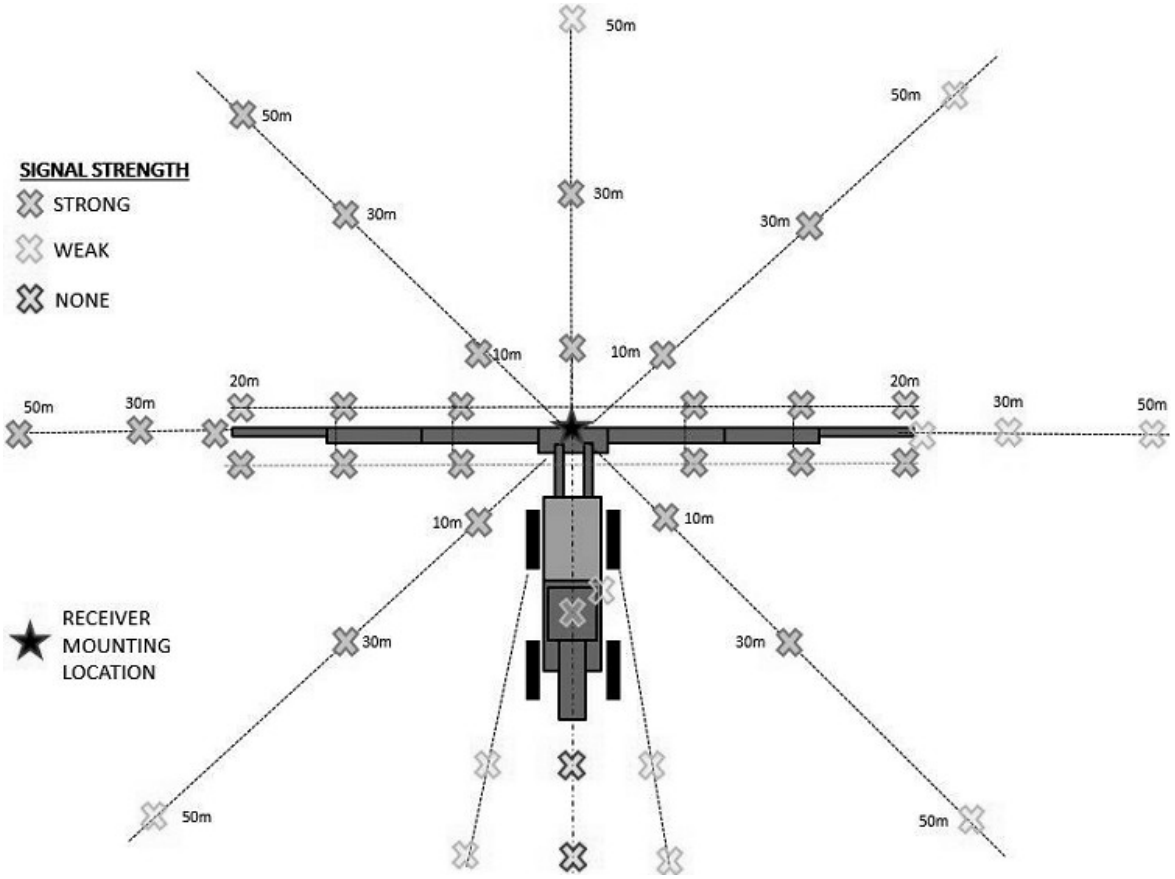
A—Boom Isolation Valve

Boom isolation valve (A) stops the flow of solution from the tank and pump to the boom when closed. The valve is closed unless the pump is ON and the booms are unfolded. The valve also opens when the spray system master switch is pressed while the boom is folded.

CS12167,000090C-19-06JAN17

Operate System with the Remote Control

Remote Control Range



N155771—UN—17MAY21

Wireless Nozzle Control Range

The remote control allows the operator to activate individual nozzles or sections of nozzles from outside the cab for troubleshooting purposes. The remote control requires a direct line of sight to the receiver which is mounted to the rear of the boom center frame. If the remote control travels outside of the range shown above, it will need to re-establish a connection with the receiver prior to the remote control functioning. To re-establish a connection, move the remote control within the range of the receiver (this can take up to 20 seconds). If the system is still unresponsive to a command, position the remote control within 2—3 meters of the receiver for 20 seconds and the connections should automatically re-establish.

Response to a command should be immediate, however, if there is a delay, this may indicate poor signal strength between the receiver and the remote control, interference, edge of operating range and/or low battery in the remote control.

In some instances, if the operator is holding/pressing a button on the remote control and walks out of the range of the receiver, the remote control can lock up. If the remote control is in a locked state, it requires a reboot. To reboot, remove the battery from the remote control for 20 seconds and re-install.

Upon a cold boot of the machine, the receiver and remote control can take up to 2 minutes to connect and begin functionality. If a remote control is taken out of range of the receiver, it can take approximately 20 seconds to re-establish a connection.

Remote Control Diagnostics

MNA diagnostic address 10 can be used to see if a paired remote control is communicating with the gateway. Pull up MNA diagnostic address 10 on the display (Menu>System>Diagnostics Center>Controllers>Machine Nozzle Controller) and have someone push a button on the remote control while they are standing just behind the center frame where the signal would be strong. In MNA DA 10 you will see “000000” displayed. Each digit aligns with a respective button on the remote control. This process will allow the operator to ensure that the remote control and gateway are communicating properly. This process only applies for a remote control that is already paired. With 2 people, have one person stand in a line of sight and another person in the cab to verify that MNA DA 10 changes when a button is pressed. For example, XXXXnX is for enable. The n should change from 0 to 1 when the button is pressed.

N155772—UN—17MAY21

Proper Battery Position Shown

If the address is not changing, verify that MNA DA 142 matches the underlined number of the serial number of the remote control you are using. If the number matches, replace the CR2032 battery in the remote control. Ensure that the + side is facing down as shown in the photo above. Batteries should be replaced every season as they typically will last 6 months.

If the number does not match the underlined number or shows 999999999, the remote control must be paired. (See Remote Control Pairing Procedure in the Maintenance section.)

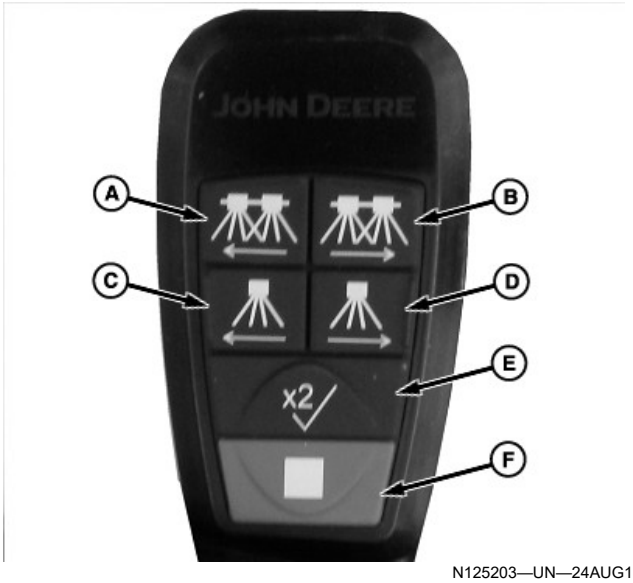
Overview of addresses:

- MNA DA 10—Remote nozzle check, button functionality; 0 = not pressed, 1 = pressed.
- MNA DA 142—Remote control underlined serial number.
- MNA DA 143—Command; 1 = pairing, 2 = erasing.
- MNA DA 144—Status; shown in table below.

Status Codes	
State	**Name**
0	PairNotActive
1	PairEnable
2	PairActive
3	PairFail
4	PairSuccess
5	MaxFobsPaired
6	EraseFail
7	EraseSuccess
8	CodeNotFound
9	DuplicateCode

Remote Control Operation

Operate the remote control from behind the boom for best results. The buttons on the remote control function as follows:



N125203—UN—24AUG16

Remote Control

A—Left-Hand Section ON Button
B—Right-Hand Section ON Button
C—Left-Hand Nozzle ON Button
D—Right-Hand Nozzle ON Button
E—Start Button
F—Stop Button

- Turn spray sections ON beginning with the right-hand most section and progressing across the boom to the left-hand side using left-hand section ON button (A).
- Turn spray sections ON beginning with the left-hand most section and progressing across the boom to the right-hand side using right-hand section ON button (B).
- Turn on the next available nozzle progressing from the right-hand side to the left-hand side of the boom using the left-hand nozzle ON button (C).
- Turn on the next available nozzle progressing from the left-hand side to the right-hand side of the boom using the right-hand nozzle ON button (D).
- Enable the remote system by pressing the start button (E) twice. Spray from the entire boom width by holding the start button for two seconds.

NOTE: Machine horn honks twice and all nozzle lights flash twice when the system is enabled.

- End nozzle tests by holding the stop button (F) for two seconds. Press the stop button once to pause spraying.

NOTE: Machine horn honks once and all nozzle lights flash once when the system is disabled.

The following conditions must be met before controlling the system with the remote control:

- Solution pump is ON.
- No remote loading operations are active.
- Machine is in park.
- Boom is unfolded.

NOTE: If any condition becomes not met during remote operation the system is disabled.

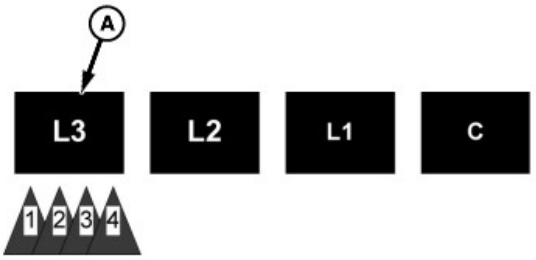
Example 1: Activate a Section then a Single Nozzle

NOTE: Only enabled nozzles are controlled when using the remote control.

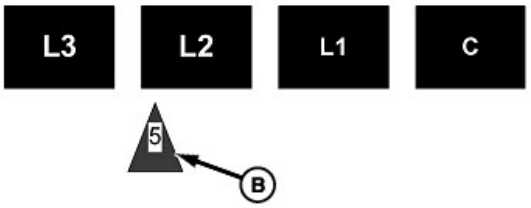
All examples start from the left-hand side of the machine. The procedure is similar to start on the right-had side of the machine.

Machine horn honks twice and all nozzle lights flash twice when the system is enabled.

1. Press the start button twice.



N125209—UN—07SEP16



N125210—UN—07SEP16

A—Left-Hand Section
B—Left-Hand Nozzle

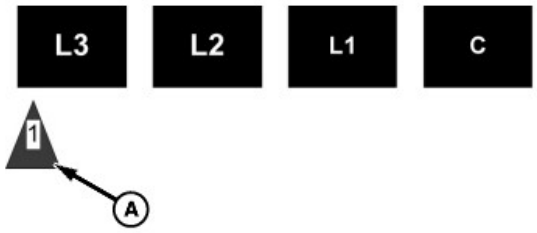
2. Press right-hand section ON button, turning ON the left-hand most section (A) on the boom.
3. Press right-hand nozzle ON button, turning ON the left-hand most nozzle (B) on the next available section.
4. Press the stop button to pause spraying.

Example 2: Activate Single Nozzles then a Section

NOTE: Only enabled nozzles are controlled when using the remote control.

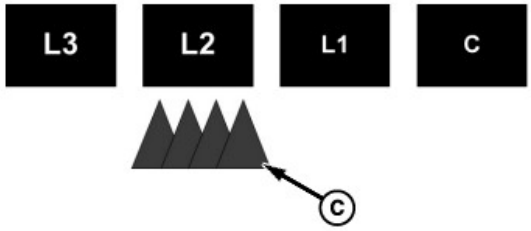
Machine horn honks twice and all nozzle lights flash twice when the system is enabled.

1. Press the start button twice.



N125211—UN—07SEP16

N125212—UN—07SEP16



N125213—UN—07SEP16

A—Left-Hand Nozzle
B—Next Nozzle
C—Spray Section

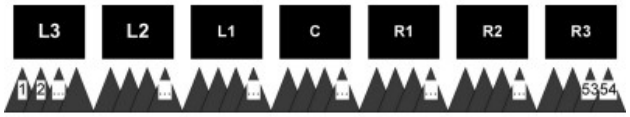
2. Press right-hand nozzle ON button, turning ON the left-hand most nozzle (A) on the boom.
3. Press right-hand nozzle ON button again, turning ON the next available nozzle (B) to the right on the boom.
4. Press right-hand section ON button, turning ON the next available section (C).
5. Press the stop button to pause spraying.

Example 3: Activate All Nozzles

NOTE: Only enabled nozzles are controlled when using the remote control.

Machine horn honks twice and all nozzle lights flash twice when the system is enabled.

1. Press the start button twice.



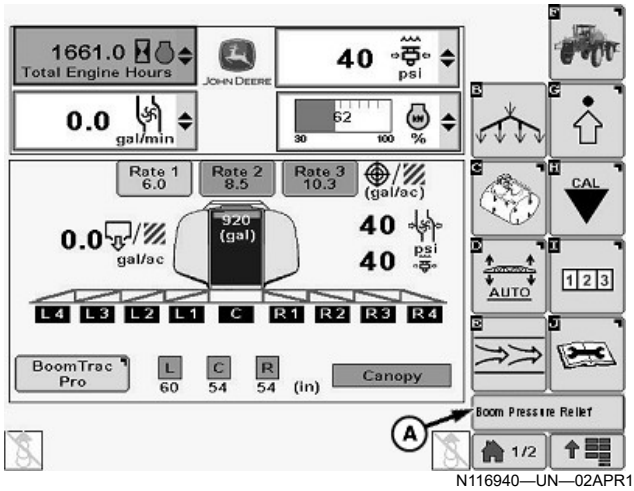
N125214—UN—07SEP16

All Sections ON

2. Press and hold the start button for more than one second to spray from the entire boom.
3. Release start button after spraying begins.
4. Press the stop button to pause spraying.

BN55050,0000596-19-18MAY21

Relieve Boom Pressure



N116940—UN—02APR15

A—Message

CAUTION: Spray system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves. Apply chemical solutions in an area where people, animals, vegetation and water supply etc., cannot be contaminated.

The Boom Pressure Relief function allows the pressure

trapped in the boom to be bled off after spraying is complete. The pressure is bled off by activating the solenoids on the nozzle bodies, discharging the solution on to the ground. The solution pump and remote load must be shut off to perform the procedure. It is recommended that the operator raise the boom center frame to its highest position. The main purpose of this function is to remove the system pressure prior to servicing.

Machines equipped with direct injection have a check valve installed that allows high pressure to be trapped in the boom plumbing. A pressure relief procedure must be preformed to remove the pressure.

NOTE: See Enabling Boom Pressure Relief in SprayStar™ section of the machine operator's manual to enable/disable this function.

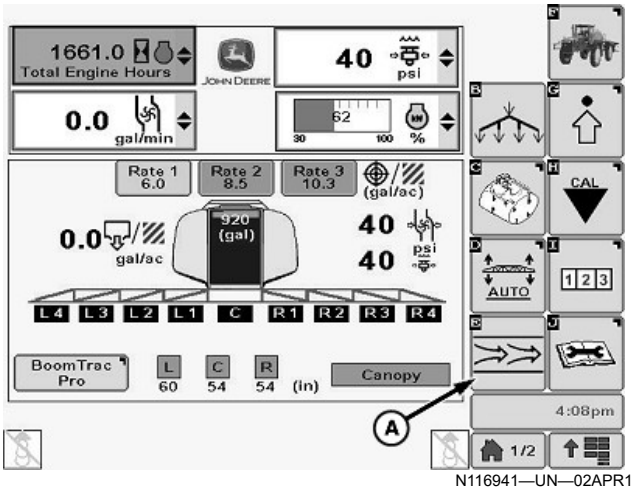
Relieving boom pressure with boom folded may result in machine being covered in solution.

1. Set Solution Pump switch to the OFF position.
2. Unfold boom.
3. Lower the center frame to the lowest position to minimize drift.
4. Press the master spray switch.
5. Pressure is relieved to the ground.

CS12167,00008EA-19-03MAY17

Operate Boom Air Purge—If Equipped

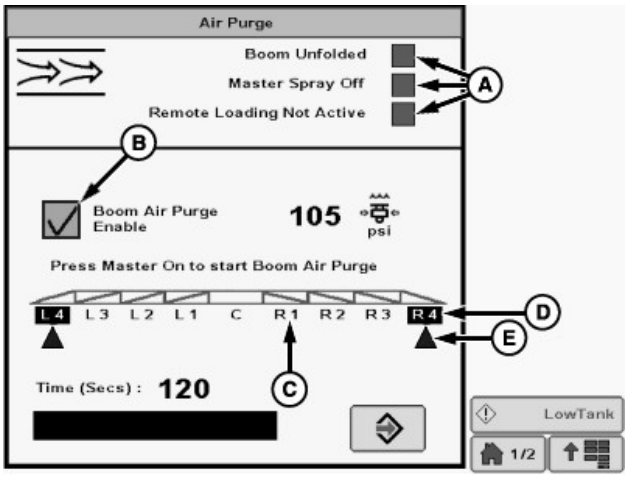
1. Park machine on a level area, unfold booms and position booms level with ground.



N116941—UN—02APR15

A—Boom Air Purge Softkey

2. Press Boom Air Purge softkey (A).
3. The following conditions must be met before Boom Air Purge can be used:
   - Inner boom sections unfolded
   - Master spray must be off for minimum of 2 seconds
   - Remote load stations must be inactive



N137008—UN—19APR18

A—Indicators
B—Boom Air Purge Enable Checkbox
C—Disabled Spray Section
D—Enabled Spray Section
E—Cone

Indicators (A) are green when all conditions are met.

4. Press Boom Air Purge Enable box (B) (check appears) to start purge process. Instructions to press master spray ON will be displayed under the check box.

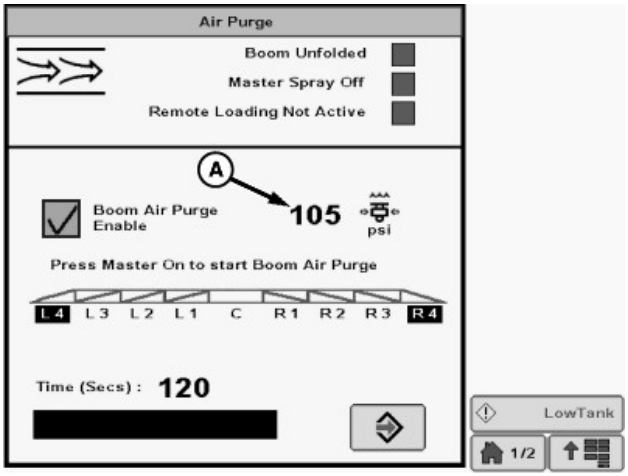
NOTE: Only enabled boom sections are purged.

Disabled sections (C) are shown as a dark lettering. Enabled sections (D) are indicated by a dark background and light lettering. A cone (E) is displayed below active sections during purge process.

5. Purge boom by enabling only the outermost section on each side and pressing the master spray ON to open section valves.
6. When sections are purged shut them off and open the next section in sequence. Repeat until all sections are purged.
7. Boom sections can be enabled using the boom section switches on the CommandARM™ side console or by using the IBS function on the multi-function lever. Fence row nozzles can also be enabled using right-hand and left-hand fence row nozzle switches on the CommandARM™.

SprayStar is a trademark of Deere & Company

CommandARM is a trademark of Deere & Company



N137009—UN—19APR18

A—Air Pressure

NOTE: Purge timer is 2 minutes. Timer pauses when the master spray button is pressed OFF. Air pressure (A) can be monitored and purging can be paused to ensure that sufficient air pressure is available to purge enabled sections.

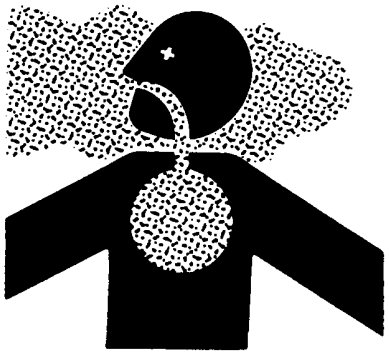
8. Purging can be stopped by pressing Boom Air Purge Enable box (check disappears) or letting timer elapse. Timer resets to 2 minutes when box is pressed again.
9. If active nozzle selection is A Only or B Only then select the remaining mode and repeat procedure. Reduced time is needed to purge the remaining nozzle.

Instructions on recharging the boom with liquid will be displayed to reduce trapped air when spraying is resumed.

BN55050,000019E-19-19APR18

Service and Operate Chemical Sprayers Safely

TS272—UN—23AUG88



TS220—UN—15APR13

Chemicals used in agricultural sprayers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

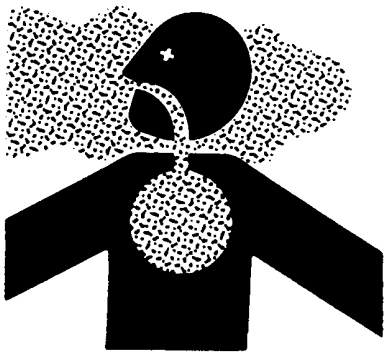
Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. (See 'Handle agricultural chemicals safely' found in the Safety Section.)
- Fill, flush, calibrate, and decontaminate sprayer in an area where runoff will not reach ponds, lakes or streams, livestock areas, or gardens, or near other people.
- Keep children away from the chemicals, chemical solutions, and rinsates.
- If spray or chemical concentrate contacts skin, hands, or face, wash immediately with soap and water.

  If spray or chemical concentrate gets into eyes, flush immediately with water.
- If nozzle clogs or system malfunctions, stop engine and relieve spray pressure from system.
- Do not place nozzle tips or other components to the mouth to clear obstructions. Keep spare tips on hand for replacement.
- Minimize risk of spray drift.
  - Use large nozzle tips operated at lower pressures
  - Do not operate solution delivery system at pressures exceeding 345kPa (3.5 bar) (50 psi).
  - Do not spray when winds exceed 16 km/h (10 mph).
  - Do not spray when wind is blowing towards a nearby sensitive crop, garden, or populated area.
- Properly dispose of unused chemicals, flushing solution, and empty chemical containers.
- Decontaminate equipment used in mixing, transferring, and applying chemicals after use.

DX,WW,CHEM02-19-05APR04

Avoid Exposure To Chemicals



TS220—UN—15APR13

TS272—UN—23AUG88

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

DO NOT RELY ONLY 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
- Always close the windows and doors during application

- Verify that John Deere activated carbon filters, or appropriate substitutes, are installed at all times (see Checking and Replacing Cab Air Filters in the Cab and Air Conditioning section)
- 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
  - U.S. Environmental Protection Agency (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 reentering cab, remove personal protective equipment used to handle chemicals, including pesticides, and store equipment in accordance with EPA guidelines to prevent contaminating cab

CS12167,000073C-19-02APR15

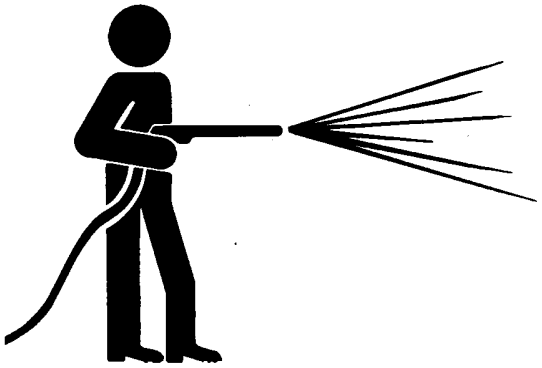
Service Spray System Safely

TS281—UN—15APR13

CAUTION: Spray system is under pressure. Before servicing spray system, conduct boom pressure relief function to relieve system pressure.

CS12167,00008E4-19-06JAN17

Clean Vehicle of Hazardous Chemicals, Including Pesticides



T6642EJ—UN—18OCT88

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.

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

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.

OUO6092,000081B-19-18JAN21

Recommended Cleaners And Coatings

IMPORTANT: As with any chemical product, always read and follow directions.

Use John Deere SprayMaster cleaning agents, equipment coating and winterizer fluid for best results. These chemicals are available from your John Deere dealer.

- Erase™ Spray System Cleaner PM433QT
- Winterizer Fluid N305634

Erase is a trademark of Precision Laboratories, LLC

- TY25396 Coating

CS12167,00009E9-19-20MAR17

Clean Solution System

CAUTION: Chemicals and pesticides are hazardous and can poison causing serious injury or death to you or others. All spraying equipment must be decontaminated before being overhauled or placed in storage. Decontamination must 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 the machine is stored.

Use Erase™ or equivalent cleaner according to the manufacture's recommendations.

CS12167,0000A32-19-02MAY17

Clean Nozzle Body

CAUTION: DO NOT clean nozzle tips by placing in mouth and blowing. You could swallow or inhale hazardous chemicals which will poison, causing serious injury or death to you or others.

IMPORTANT: Do not pressure wash these components. Use normal water pressure less than 345 kPa (3.45 bar) (50 psi).

Nozzle bodies only need to be removed from the boom when the entire nozzle body must be replaced. All components of the nozzle body can be serviced without removing the nozzle body.

1. Remove nozzle body from the spray boom.
2. Clean contaminates from nozzles body using water, mild detergent, and compressed air as needed.
3. See Repair Nozzle Turret and Repair Nozzle Solenoid in this section for disassembly instructions.

CS12167,0000A33-19-01MAY17

Rinse Nozzle Bodies—Daily

IMPORTANT: Perform a boom rinse procedure daily to help prevent nozzle plugging and solenoid malfunctions. Spray rinse water through both solenoids A and B.

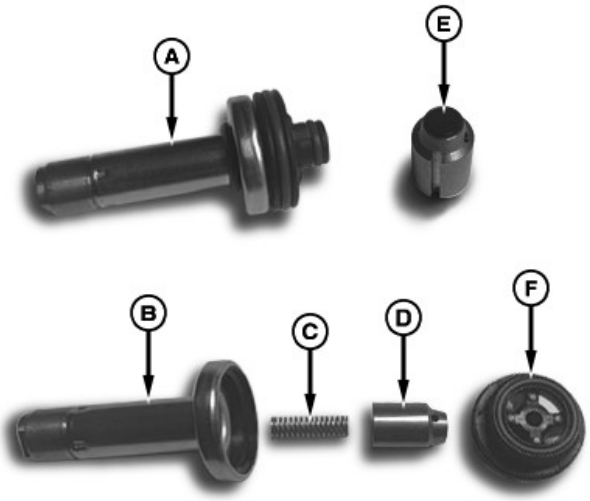
ExactApply™ nozzle bodies require additional care and maintenance to ensure proper function of the system. The nozzle bodies require both A and B solenoids to be rinsed, even if one channel has not been used during spray operation. Nozzle bodies must be rinsed daily when a chemical has been used. Do not allow spray cleaners/tank cleaners to sit in the system for longer than label recommendations or one day at most.

1. Follow the steps outlined in the machine Operator's Manual to begin a boom rinse.
2. Verify that a nozzle tip is assigned in the display to A + B nozzle selection (if not in Combined A + B nozzle selection). Verify that the spray pulsing mode is set to fixed and the nozzle flow is set to 50—75%.
3. Physically remove nozzle tips from the nozzle turrets located on an aspirator (end of pipe section). This increases the flow/velocity within the pipe to ensure that any settled solution is flushed out of the spray pipe.
4. Perform a system or boom rinse. Rinse one section at a time at 90 psi for a minimum of 10 seconds per section. The recommended volume of rinse water to be used is a minimum of 454—644 L (120—170 gal).
5. Replace the removed nozzle tips, ensuring proper turret location of each tip. Adjust spray mode settings back to original settings for normal spraying operation.

BN55050,000056E-19-17MAY21

Erase is a trademark of Precision Laboratories, LLC

Cartridge Component Identification



N154609—UN—08MAR21

A—Cartridge Assembly

B—Cartridge Stem

C—Spring

D—Plunger

E—Poppet

F—Valve Seat

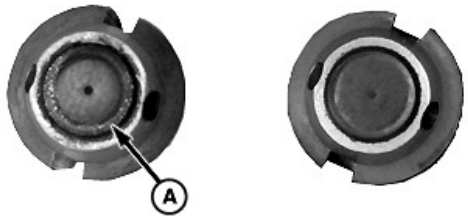
AOTA2VY,0000418-19-16MAR21

Inspect Cartridge Components

Initially inspect all cartridge assemblies after 750 spray hours or as needed. Inspect the cartridge assemblies if performance issues develop across multiple cartridges. The life of the cartridge assembly varies depending on modes of operation used and chemical types.

Factors that lead to reduced cartridge assembly life:

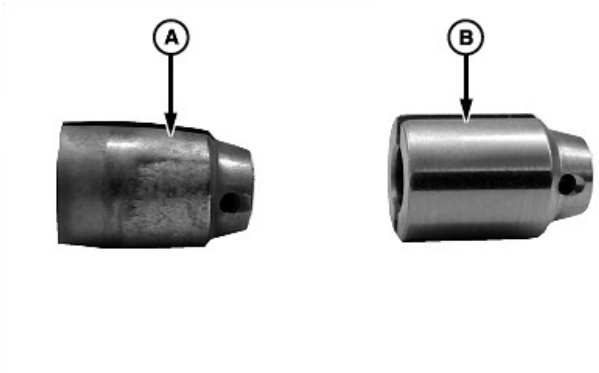
- Operating mode
  - Pulsing mode increases wear
  - Sprayer mode: Operating time with A vs B
- Higher operating pressure
- Water with sand or other particles
- Corrosion
  - Low PH defoliants and fertilizers
  - Failing to use glycol-based fluids
- Chemicals mixed with powders or granules
- Inadequate rinsing



N125215—UN—21NOV16

A—Groove

After extended use, the plunger poppet wears a groove (A) from contact with the orifice seat. The plunger must be replaced when worn or damaged.



N137010—UN—19APR18

A—Worn Plunger
B—New Plunger

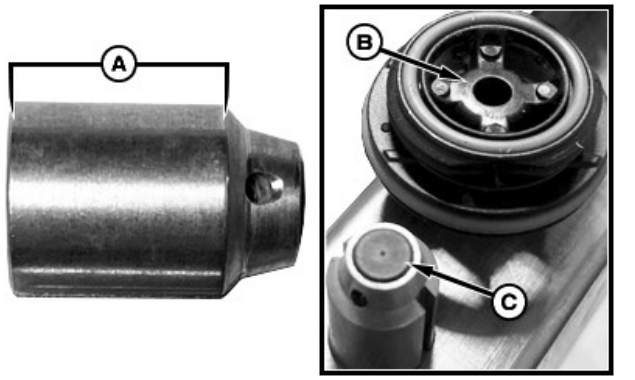
The plungers also become worn on the sides (A) as compared to a new plunger (B). When heavy side wear occurs, the plunger must be replaced. If the valve seat and plunger are both heavily worn, the entire cartridge assembly must be replaced. See Repair Nozzle Solenoid in this section for list of parts included in the cartridge assembly.

The pressure capacity of the nozzle body decreases as the plunger becomes worn. Worn plungers cause erratic pulsing or leaks, which may result in multiple nozzle bodies showing an error.

Use the following information to determine the level of wear or corrosion and any necessary steps for repair:

Disclaimer: The following information is a guideline for inspecting cartridge components for different levels of wear. The remaining hours of life that are provided are approximations only. Recommendations are based on visual inspections. The cartridge assembly is a wear part and life may vary as previously mentioned. If consistent performance issues are observed, such as drips, leaks, or stuck open/closed plungers, inspect the cartridge assemblies as needed.

No Wear

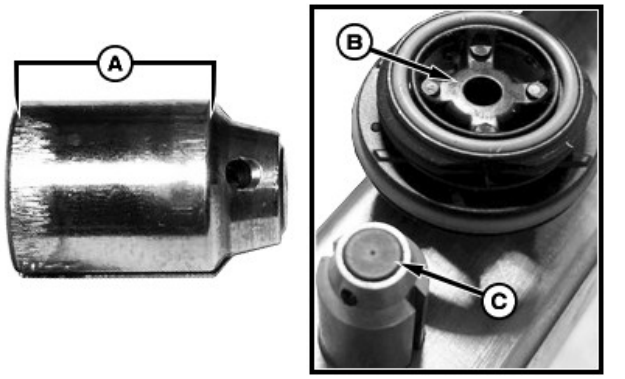


N154610—UN—09MAR21

A—Outer Plunger Surface
B—Valve Seat
C—Poppet

If there is no visible wear on the outer plunger surface (A), valve seat (B), or the poppet (C), inspect the cartridge components after an additional 750 spray hours.

Light Wear



N154831—UN—09MAR21

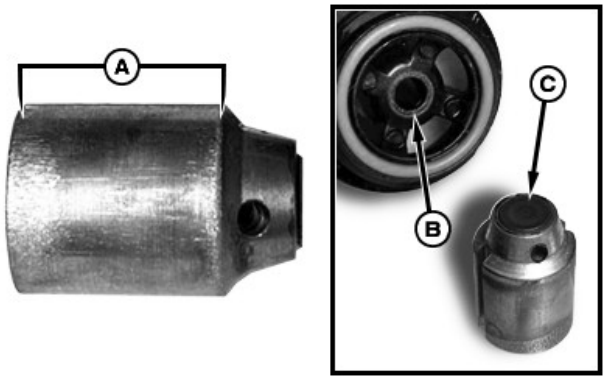
A—Outer Plunger Surface
B—Valve Seat
C—Poppet

Cartridge components are **lightly worn** if:

- 0—25% of the outer plunger surface (A) is scratched as shown.
- There is no damage to the valve seat (B) or poppet (C).

Inspect all cartridge components again after an additional 750 spray hours.

Moderate Wear



N154832—UN—09MAR21

A—Outer Plunger Surface
B—Valve Seat
C—Poppet

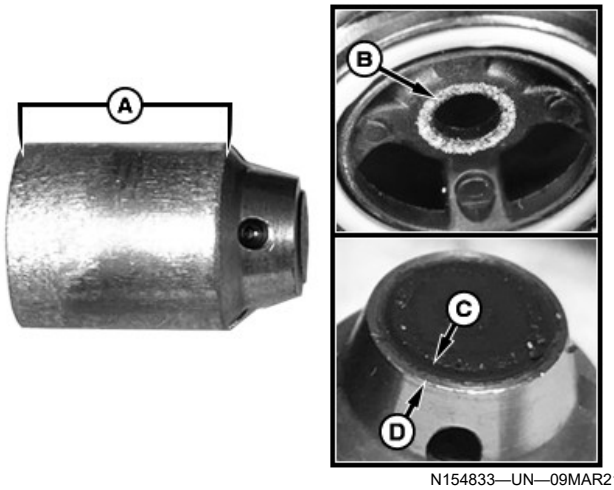
Cartridge components are **moderately worn** if:

- 25—50% of the outer plunger surface (A) is scratched or scarred.
- The valve seat (B) and poppet (C) show slight circular marking as shown.

If **less** than 10% of the plungers have moderate wear, inspect all cartridge components again after an additional 500 spray hours.

If **more** than 10% of the plungers have moderate wear, inspect all cartridge components again after an additional 250 spray hours.

Heavy Wear



N154833—UN—09MAR21

A—Outer Plunger Surface
B—Valve Seat
C—Poppet
D—Plunger Edge

Cartridge components are **heavily worn** if:

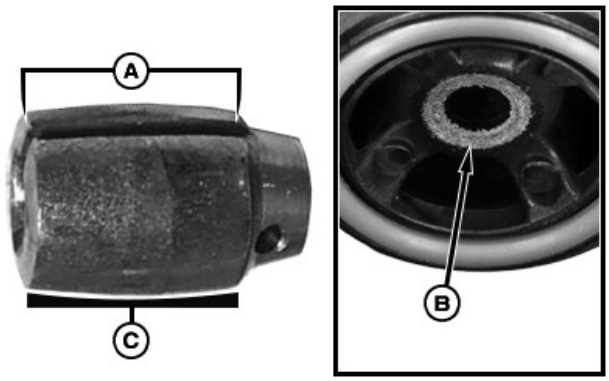
- 50% or more of the outer plunger surface (A) is scratched or scarred.
- The valve seat (B) is rough or shows signs of damage.

- The poppet (C) has significant wear, holes, tears, or the outer edge has been worn flush with the plunger edge (D) as shown.

If **either** the plunger **or** the valve seat shows heavy wear, replace the component.

If **both** the plunger and valve seat show heavy wear, replace the cartridge assembly.

Excessive Wear



N154834—UN—09MAR21

A—Outer Plunger Surface
B—Valve Seat
C—Curved Edge

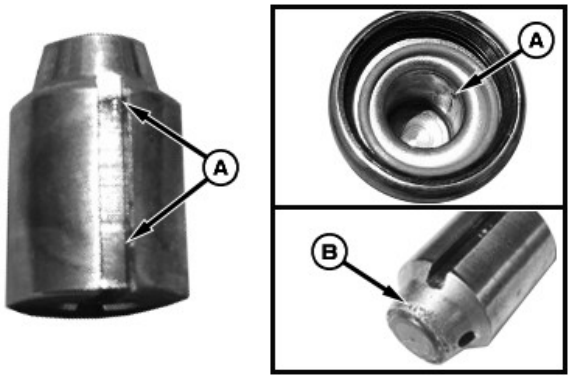
If there is a leak, or if a plunger does not open at high pressures, the components could be excessively worn.

Cartridge components are **excessively worn** if:

- The outer plunger surface (A) is almost completely covered in scratches and scarring.
- The poppet shows significant wear, holes, tears, or is missing.
- The valve seat (B) is heavily worn, rough, and concave.
- The plunger has curved edges (C) as shown.

If **any** cartridge component shows excessive wear, replace the cartridge assembly.

Light Corrosion and Pitting



N154835—UN—08MAR21

Light Corrosion and Pitting

A—Rust
B—Pitting

Red rust (A) or pitting (B) may develop on the plunger and stem.

If no leaks are present, inspect components again after an additional 250 spray hours.

Moderate Corrosion and Pitting

N154836—UN—09MAR21

Moderate Corrosion and Pitting

If a nozzle is leaking or the plunger is sticking, components may have moderate corrosion or pitting.

Clean the cartridge components using water, mild detergent, and a cleaning brush. After cleaning, check that the plunger moves freely up and down and that there are no leaks present.

IMPORTANT: Ensure that the outer stem surface is dry before installing the solenoid.

If the nozzle does not leak, inspect again after an additional 250 spray hours.

If the plunger does not move freely or if the nozzle leaks, replace the plunger.

Heavy Corrosion and Pitting

N154837—UN—09MAR21

Heavy Corrosion and Pitting

If a nozzle is leaking or the plunger is sticking, components may have heavy corrosion or pitting.

If components are heavily pitted or corroded as shown, replace the cartridge assembly.

Broken Spring

N154838—UN—09MAR21

A—Spring

If a nozzle leaks, the spring (A) may be broken.

Replace the plunger and spring. (The plunger and spring are sold together.)

AOTA2VY,0000417-19-05MAY21

Remove and Install Nozzle Body—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. Perform service in an area where people, animals, vegetation, and water supply, and so on, cannot be contaminated.

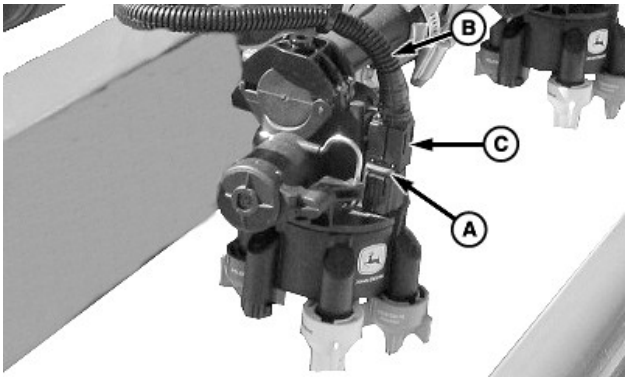
Do not drain solution onto the ground. Drain into a container.

High pressure is trapped in the boom on machines equipped with Direct Injection. Perform pressure relief procedure before servicing the nozzle body.

1. Perform a boom rinse procedure. (See the Rinse System Application section of the machine Operator's Manual.)
2. Relieve the boom pressure. (See Relieve Boom Pressure in the Operating Nozzle Control section.)

NOTE: Boom isolation valve automatically closes when the solution pump is turned off or the boom is folded.

3. Verify that the boom isolation valve is closed.
4. Adjust boom position so that the plumbing at the nozzle to be removed is in a level position.
5. Clean the exterior of the nozzle body from contamination.
6. Clean the electrical connector with TY26632 Electronic Contact Cleaner and compressed or canned air.



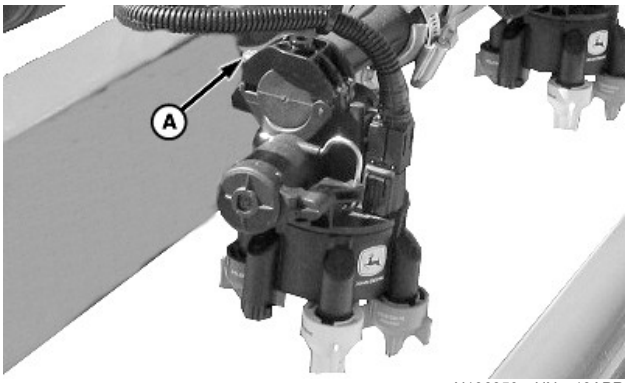
N136849—UN—18APR18

A—Connector Lock
B—Harness
C—Connector

7. Unlock the connector. Pull connector lock (A) upward.

IMPORTANT: Do not pull on harness (B) when removing connector (C). Harness or connector damage may occur.

8. Pull on the plastic portion of the connector to remove the connector from nozzle body.



N136850—UN—18APR18

A—Screw

9. Remove screw (A).

NOTE: Use a suitable container to catch any leaked solution.

10. Remove nozzle body.
11. Install in reverse order. Observe the following notes during installation.

NOTE: Apply an anti-seize compound to the nozzle body mounting screw when installing with power tools. Use only low speed power tools when installing nozzle body to avoid damaging hardware.

Verify that connector lock is fully raised before installing connector to nozzle body.

Lubricate connector seal with T242210 NyoGel® or equivalent before installation.

Tighten previously removed screw to 2 N·m (17.7 lb·in).

BN55050,000058A-19-28APR21

Repair Nozzle Turret

CAUTION: Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing. You could swallow or inhale hazardous chemicals which will poison, causing serious injury or death to you or others.

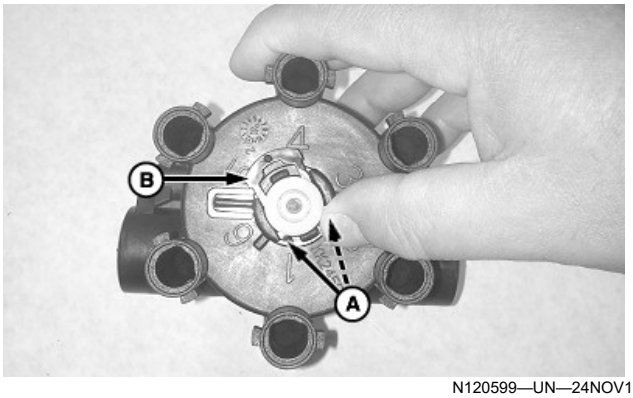
Relieve trapped pressure in the spray boom before servicing nozzle body.

IMPORTANT: Do not allow solvent or diesel fuel to contact rubber parts as it causes deterioration.

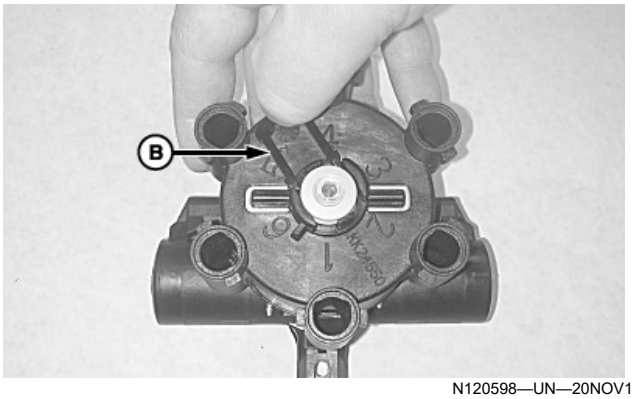
1. Perform pressure relief procedure. (See Pressure Relief in the Operating Nozzle Control section.)

NOTE: It is not necessary to remove the nozzle body when removing the nozzle turret.

2. Remove nozzle body from the spray boom if desired. (See Remove and Install Nozzle Body—As Required in this section.)



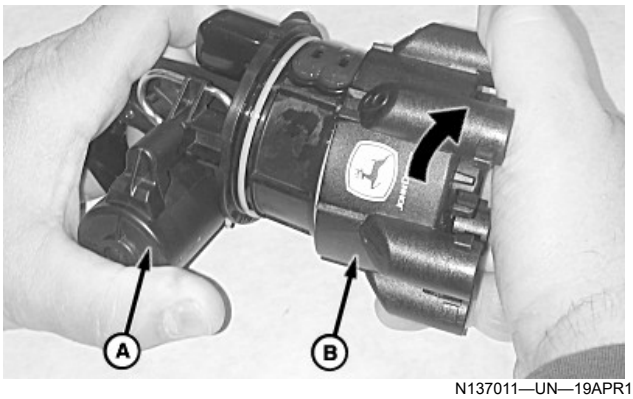
N120599—UN—24NOV15



N120598—UN—20NOV15

A—Tabs
B—Clip

3. Push lock tabs (A) to disengage, and remove clip (B).

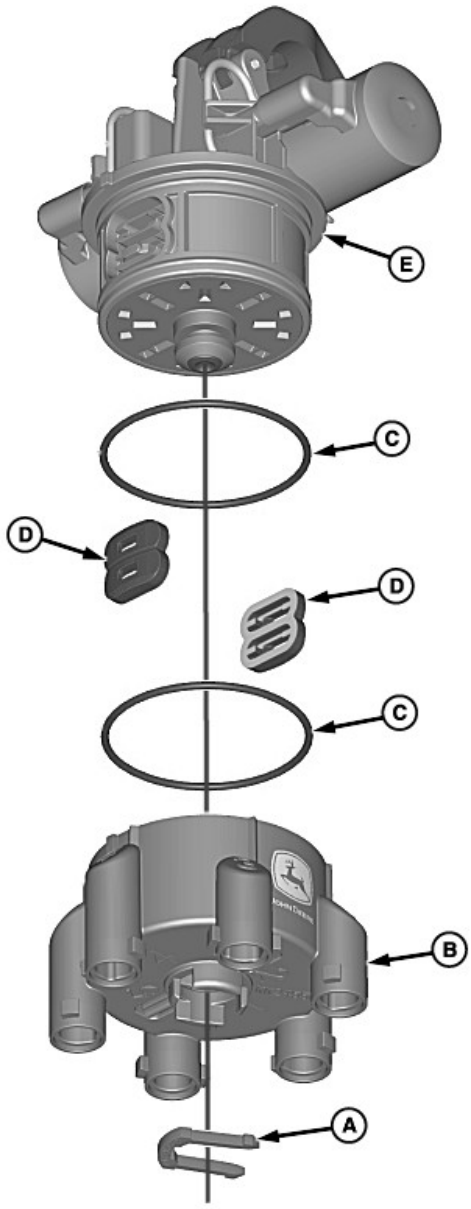


N137011—UN—19APR18

A—Nozzle Body
B—Turret

4. Retain nozzle body (A) and remove the turret (B).

NyoGel is a trademark of Nye Lubricants Inc.



N137575—UN—11JUN18

A—Clip
B—Turret
C—O-Rings (2 used)
D—Seals (2 used)
E—Nozzle Body

5. Disassemble remaining parts.

IMPORTANT: Always use new O-rings. Damaged or used O-rings leak.

NOTE: Lubricate turret O-rings and seals with PMH3503 Parker Super O-Lube or equivalent lubricant during reassembly.

6. Inspect parts for wear or damage, replace as needed.
7. Assemble in reverse order.
8. Install the nozzle body. (See Remove and Install Nozzle Body—As Required in this section.)

BN55050,0000186-19-07JUN18

Repair Nozzle Solenoid

CAUTION: DO NOT clean nozzle tips by placing in mouth and blowing. This action could result in swallowing or inhaling hazardous chemicals that will poison, causing serious injury or death.

Relieve trapped pressure in the spray boom before servicing nozzle body.

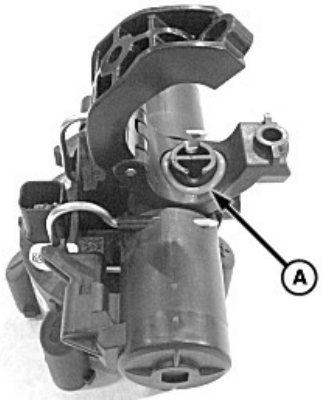
IMPORTANT: Do not allow solvent or diesel fuel to contact rubber parts, as it causes deterioration.

NOTE: Spare nozzle parts and service tools are shipped with the machine.

1. Relieve the boom pressure. (See Relieve Boom Pressure in the Operating Nozzle Control section.)

NOTE: It is not necessary to remove the nozzle body when removing the nozzle solenoid.

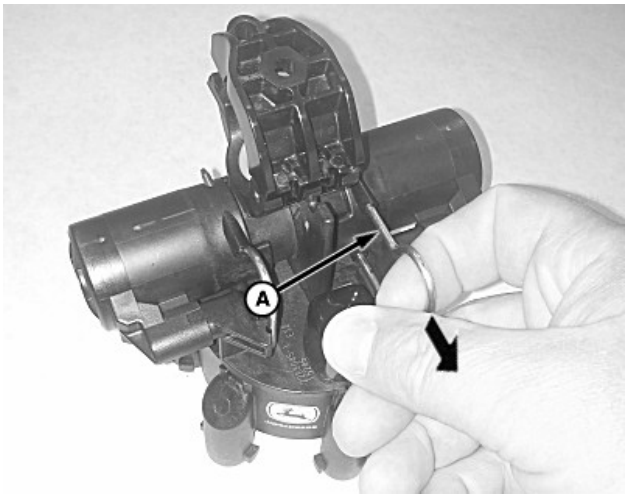
2. Remove the nozzle body from the spray boom if desired. (See Remove and Install Nozzle Body—As Required in this section.)



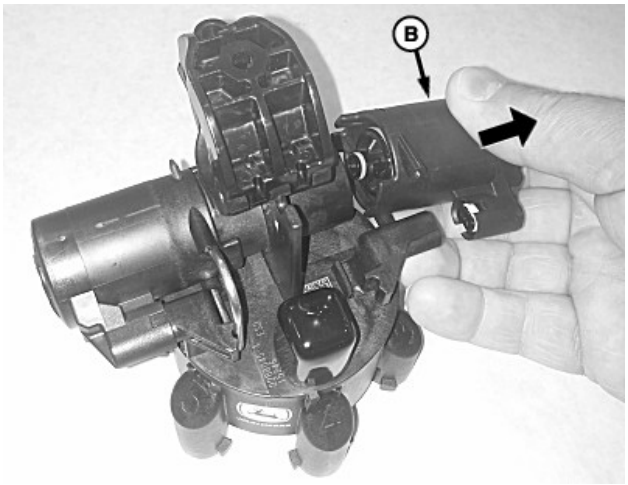
N120583—UN—27FEB17

A—O-Ring

3. Remove O-ring (A).
4. Clean around the electrical connection and the solenoid.



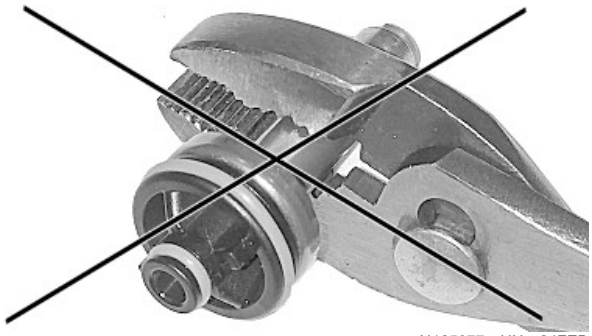
N120586—UN—27FEB17



N120590—UN—27FEB17

A—Clip
B—Solenoid

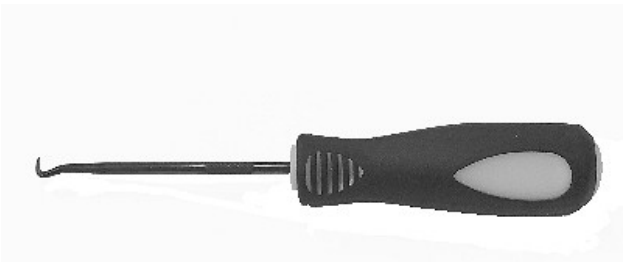
5. Remove clip (A) and solenoid (B).



N125077—UN—24FEB17

Incorrect

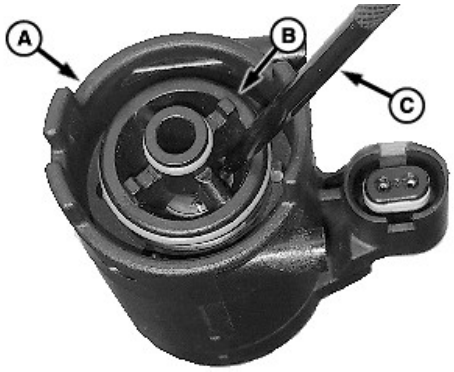
IMPORTANT: Do not use a channel lock or pliers on the tube of the cartridge.



N128224—UN—27FEB17

PT21225 Offset Hook

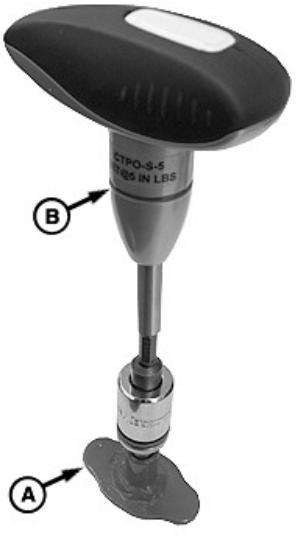
Do not damage components when using the offset hook tool to remove a stuck cartridge. Use caution to maintain grip when using the tool to remove components.



N128221—UN—24FEB17

A—Solenoid
B—Cartridge Assembly
C—Offset Hook

6. Remove cartridge assembly (B) from solenoid (A). If the cartridge does not pull out by hand, insert PT21225 Offset Hook (C) into a quadrant in the valve seat.



N136975—UN—18APR18

A—Cartridge Wrench
B—Torque Wrench

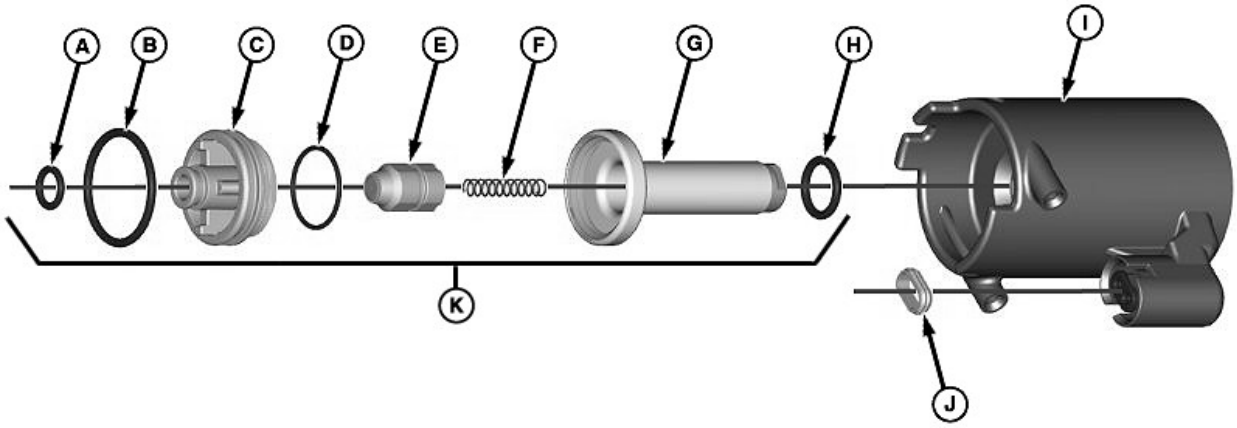
7. Install the cartridge into cartridge wrench (A) and align the flats.
8. Install torque wrench (B) onto the valve seat.
9. Turn the valve seat counterclockwise to remove from the cartridge assembly.

N136974—UN—18APR18

A—Hole

10. Remove the plunger and spring by inserting PT21225 Offset Hook into a hole (A) in the plunger.

IMPORTANT: Do not soak the solenoid in spray cleaner solution.



N128220—UN—27FEB17

A—O-Ring
B—O-Ring
C—Valve Seat
D—O-Ring
E—Plunger
F—Spring
G—Tube Assembly
H—O-Ring
I—Solenoid
J—Harness Connector Seal
K—Cartridge Assembly

11. After the valve seat is removed from the cartridge (K), the remaining parts can be soaked in Erase™ or an equivalent cleaner, diluted per label instructions, to aide in disassembly.
12. Disassemble the remaining parts.

IMPORTANT: Always use new O-rings. Damaged or used O-rings leak.

NOTE: Do not apply any lubricant to the cartridge O-rings when reassembling.

13. Inspect parts for wear or damage and replace as needed.

IMPORTANT: Valve seat wrench must be used when tightening the valve seat to prevent damage.

NOTE: The provided torque wrench has a preset value of 0.57 N·m (5 lb·in).

Pin must be easily installed by hand. If tapping or excessive force is required, inspect the cartridge and electrical connector for contamination or misalignment. If no contamination or misalignment are found, the pin may be lubricated with penetrating oil to aide in installation.

Lubricate the connector seal with T242210 NyoGel® or equivalent before installation.

14. Assemble in reverse order using the following special instruction:

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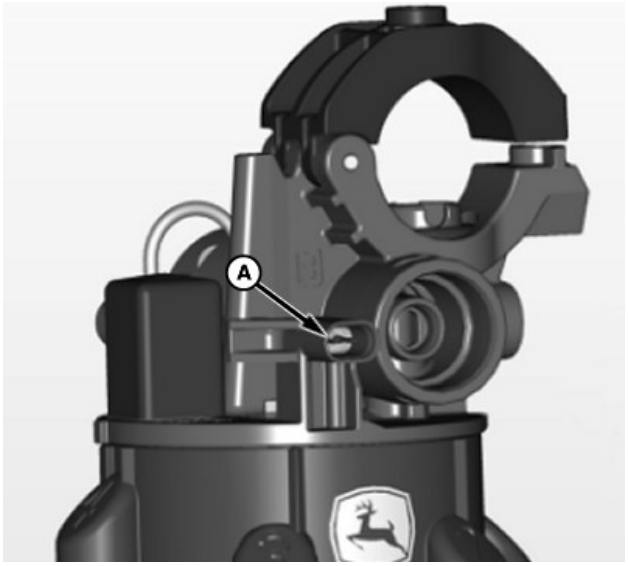
NyoGel is a trademark of Nye Lubricants Inc.

NOTE: Failure to clean the two pins may cause corrosion on the pins, which may lead to a nozzle body failure.



N145288—UN—22OCT19

A—2-Pin Connector

- Spray a small amount of Electronic Contact Cleaner (TY26632) inside the 2-pin connector (A) of the nozzle body before the solenoid or cartridge is reinstalled to clean any solution that came into contact with the pins. Allow to dry before installing the solenoid.

15. Repeat steps for the remaining solenoid.
16. Install the nozzle body. (See Remove and Install Nozzle Body—As Required in this section.)

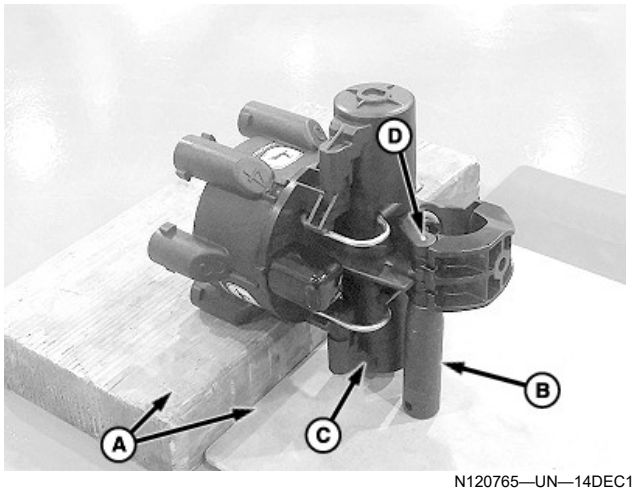
BN55050,0000582-19-21APR21

Repair Nozzle Half Clamp

CAUTION: Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing. You could swallow or inhale hazardous chemicals which will poison, causing serious injury or death to you or others.

Relieve trapped pressure in spray boom before servicing nozzle body.

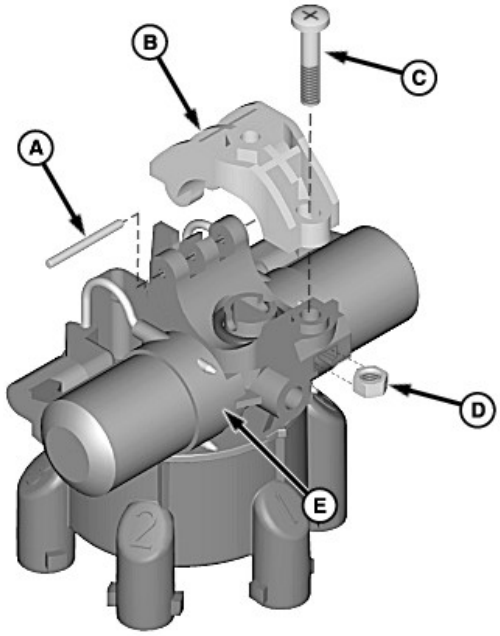
1. Perform pressure relief procedure. (See Relieve Boom Pressure in the Operating Nozzle Control section.)
2. Remove nozzle body. (See Remove and Install Nozzle Body—As Required in this section.)



N120765—UN—14DEC15

A—Blocking
B—3/8 in x 8 mm Deep Socket
C—Solenoid
D—Pin

3. Support nozzle body with blocking (A) and 3/8 in x 8 mm deep socket (B). Make certain solenoid (C) is not resting on blocking.
4. Using a small pin punch, tap the pin (D) into socket.



N120766—UN—14DEC15

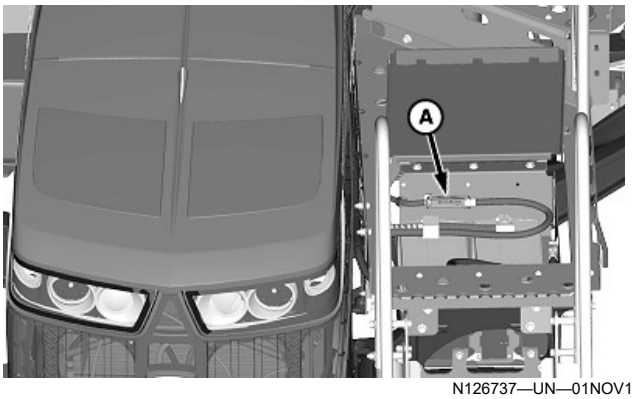
A—Pin
B—Half Clamp
C—Screw
D—Nut
E—Housing Body Assembly

5. Inspect parts for wear or damage, replace as needed.
6. Assemble in reverse order using a C-clamp or channel-lock pliers to install pin.

7. Install nozzle body. (See Remove and Install Nozzle Body—As Required in this section.)

CS12167,0000A3C-19-23MAY17

Fuse Locations



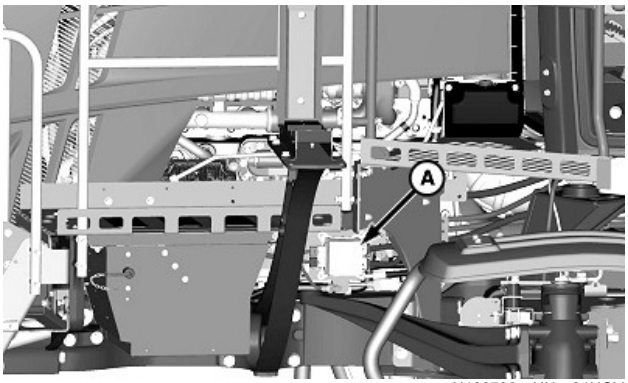
N126737—UN—01NOV16

A—Main Power Fuse

The main power fuse (A) is located inside the battery box.

Specification

Main Power Fuse—Amperage. . . . . 150 A



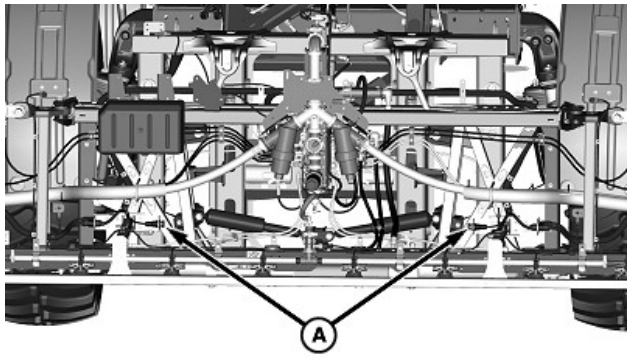
N126738—UN—01NOV16

A—Fuse Box

Nozzle body and control unit fuses and relays are located behind the battery box in the fuse box (A).

CS12167,0000934-19-06JAN17

Remote Service ADVISOR™ Connection Locations



N126744—UN—01NOV16

A—Service ADVISOR™ Connections

Service ADVISOR™ connections (A) are on the boom center frame allowing for the easy programming of nozzle bodies when necessary.

Contact your John Deere dealer or qualified service provider for programming a nozzle body.

CS12167,000093D-19-06JAN17

Remote Control Pairing Procedure

Remote control operation requires the remote control and receiver to be paired. The receiver stores up to six unique remote controls at a time. Remote controls can be added or removed from this registered list as needed when lost or replaced.

Once the remote control system is activated, the first two paired remotes to be used are allowed to control the system. If a different remote is to be used, then the key power must be cycled OFF then ON before activating the system with a different remote. Only two remotes can be active at a time.

NOTE: Only one remote control could be paired at a time. A key cycle is required for each additional pairing.

Pairing Procedure:

1. Turn the key switch to the run position.
2. Go to the Diagnostic Center and access the MNA diagnostic address 142.

NOTE: “999999999” is displayed if a serial number has not been entered during the current power cycle.

Service ADVISOR is a trademark of Deere & Company

N130599—UN—22MAY17

A—Serial Number

3. Enter the underlined portion of the serial number (A) on the back of the remote control.
4. Advance to the diagnostic address 143.
5. Change the address value to one.

NOTE: The system allows the operator up to 2 minutes to complete the pairing process. Remote control needs to be moved closer to the receiver depending on the battery level and environment.

6. Advance to the diagnostic address 144. Observe the pairing progress. Possible pairing statuses include the following:
   - Pairing disabled
   - Pairing enabled
   - Pairing active
   - Pairing successful
   - Pairing failed
   - Pairing code entered does not match remote control
   - Max number of remote controls exceeded
   - Duplicate pairing code
7. If the pairing fails, the key must be turned OFF before another attempt can be made. It is not necessary to turn OFF the key after a successful pairing function.

Erasing Procedure:

1. Turn the key switch to the run position.
2. Go to the Diagnostic Center and access the MNA diagnostic address 142.

NOTE: “999999999” is displayed if a serial number has not been entered during the current power cycle.

Enter zero to erase all remote control pairs.

N130599—UN—22MAY17

A—Serial Number

3. Enter the underlined portion of the serial number (A) on the back of the remote control.
4. Advance to the diagnostic address 143.
5. Change the address value to two.

NOTE: The system allows the operator up to 2 minutes to complete the erasing process. Remote control needs to be moved closer to the receiver depending on the battery level and environment.

6. Advance to the diagnostic address 144. Observe the pairing progress. Possible pairing statuses include the following:
   - Erase failed
   - Erase successful
7. If erase fails, the key must be turned OFF before another attempt can be made. It will not be necessary to turn OFF the key after a successful erase function when there is any new remote controls that are to be paired. The operator must cycle the key when pairing a new remote control after erasing.

BN55050,0000187-19-10MAY19

Diagnostic Pages

Diagnostic information is available for all nozzles on the spray boom. See ExactApply™ Status in Boom and Nozzles Application to access fault information.

The following information is available for each nozzle:

- Nozzle Position on the spray boom
- Source Address
- Hardware Part Number
- Hardware Serial Number
- Hardware Manufacturing Date
- Software Part Number
- Software Version
- Supplied Voltage
- Valve A Current
- Valve B Current
- Valve A PWM Value
- Vavle B PWM Value

CS12167,0000832-19-06JAN17

ExactApply is a trademark of Deere & Company

Nozzle Body

Symptom	Problem	Solution
Valve is lodged open.	Debris in the valve.	Clean debris from effected valve.
		Pressure strainer damaged. Check pressure strainers for holes or other damage.
Valve is lodged closed.	Debris in the valve.	Clean debris from effected valve.
Coil circuit is open.	Defective nozzle body.	Test nozzle body. See your John Deere dealer or qualified service provider.
		Replace nozzle body.
	Coil is defective.	Test coil resistance (6.0—7.0 ohm).
Coil circuit is closed.	Defective nozzle body.	Test nozzle body. See your John Deere dealer or qualified service provider.
		Replace nozzle body.
	Coil is defective.	Test coil resistance (6.0—7.0 ohm).
System cannot maintain constant pressure.	Worn poppet valves.	Inspect and replace poppet valves.
	Sticky poppet valves.	Inspect and clean poppet valves.
	Incorrect spray tip installed.	Install correctly sized spray tips.
	Incorrect specific gravity entered.	Enter the correct specific gravity in the display.
Nozzle drips or does not shut off.	Plunger is lodged with debris.	Remove and clean the plunger.
	Plunger is worn.	Inspect and replace plunger.
	An O-ring is damaged.	Replace O-ring.
	Cartridge tube bent.	Roll tube on flat surface to check straightness, replace as necessary.
	Cartridge tube out of round.	Inspect for damage due to improper tool usage. Verify plunge moves freely in tube. Replace as necessary.
	Valve seat over-tightened.	Check for damaged or deformed threads. Replace as necessary.
Nozzle sprays erratically.	Plunger is worn.	Inspect and replace plunger.

Symptom	Problem	Solution
Solution leaks from other nozzles and around turret.	Turret seals failure.	Replace turret seals as needed.
	Debris on turret seal.	Clean and lubricate turret seal.
Solution leaking around solenoid coil.	Damaged or missing valve seat O-rings.	Inspect and replace as necessary.

CS12167,0000A35-19-03MAY17

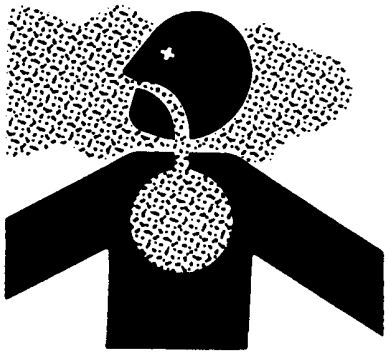
Remote Nozzle Control

Symptom	Problem	Solution
Remote control is not activating nozzle bodies.	Remote control is out of range from the receiver.	Move remote control closer to the receiver.
	Remote control has not repaired after being taken out of range.	Move receiver in to the connection range and wait 20 seconds for pairing to take place.
		Place remote control within 3 m (9.8 ft) for 20 seconds.
	Remote control is locked-up from pressing and holding a button while moving out of range.	Remove battery from the remote control, wait 20 seconds, then install battery.
	Remote control usage attempted too soon after machine start-up.	Wait at least 2 minutes after machine start-up before using the remote control.
	Signal to the receiver is blocked.	Ensure that there is a clear line of sight to the receiver.
		Avoid having steel structure between the receiver and remote control.

CS12167,0000B36-19-11APR18

Service and Operate Chemical Sprayers Safely

TS272—UN—23AUG88



TS220—UN—15APR13

Chemicals used in agricultural sprayers can be harmful to your health or the environment if not used carefully.

Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

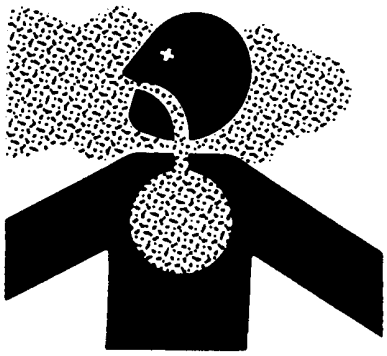
Reduce risk of exposure and injury:

- Wear appropriate personal protective equipment as recommended by the manufacturer. (See 'Handle agricultural chemicals safely' found in the Safety Section.)
- Fill, flush, calibrate, and decontaminate sprayer in an area where runoff will not reach ponds, lakes or streams, livestock areas, or gardens, or near other people.
- Keep children away from the chemicals, chemical solutions, and rinsates.
- If spray or chemical concentrate contacts skin, hands, or face, wash immediately with soap and water.

  If spray or chemical concentrate gets into eyes, flush immediately with water.
- If nozzle clogs or system malfunctions, stop engine and relieve spray pressure from system.
- Do not place nozzle tips or other components to the mouth to clear obstructions. Keep spare tips on hand for replacement.
- Minimize risk of spray drift.
  - Use large nozzle tips operated at lower pressures
  - Do not operate solution delivery system at pressures exceeding 345kPa (3.5 bar) (50 psi).
  - Do not spray when winds exceed 16 km/h (10 mph).
  - Do not spray when wind is blowing towards a nearby sensitive crop, garden, or populated area.
- Properly dispose of unused chemicals, flushing solution, and empty chemical containers.
- Decontaminate equipment used in mixing, transferring, and applying chemicals after use.

DX,WW,CHEM02-19-05APR04

Avoid Exposure To Chemicals



TS220—UN—15APR13

TS272—UN—23AUG88

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

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

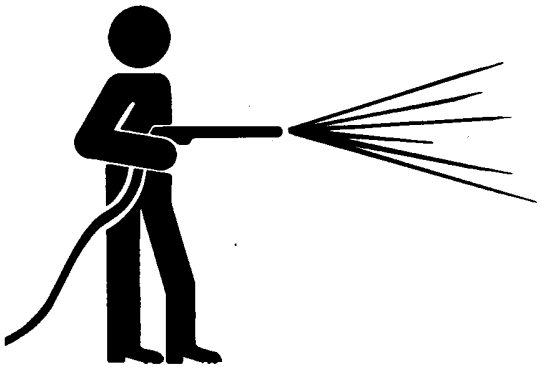
To reduce risk of chemical exposure:

- Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer's label
- Allow only trained, certified applicators to apply chemicals
- Always close the windows and doors during application

- Verify that John Deere activated carbon filters, or appropriate substitutes, are installed at all times (see Checking and Replacing Cab Air Filters in the Cab and Air Conditioning section)
- 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
  - U.S. Environmental Protection Agency (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 reentering cab, remove personal protective equipment used to handle chemicals, including pesticides, and store equipment in accordance with EPA guidelines to prevent contaminating cab

CS12167,000073C-19-02APR15

Clean Vehicle of Hazardous Chemicals, Including Pesticides



T6642EJ—UN—18OCT88

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.

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

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.

OUO6092,000081B-19-18JAN21

Recommended Cleaners and Coatings

IMPORTANT: As with any chemical product, always read and follow directions.

Use John Deere SprayMaster™ cleaning agents, equipment coating, and winterizer fluid for best results. These chemicals are available from your John Deere dealer:

- PM434QT Incide-Out™ Spray Tank Cleaner
- PM433QT Erase™ Spray System Cleaner
- N305634 and TY26555 Sprayer Winterizer Fluid
- TY22032 and TY27529 Fluid Film®

OUO6092,0000E36-19-12FEB20

Clean Solution System

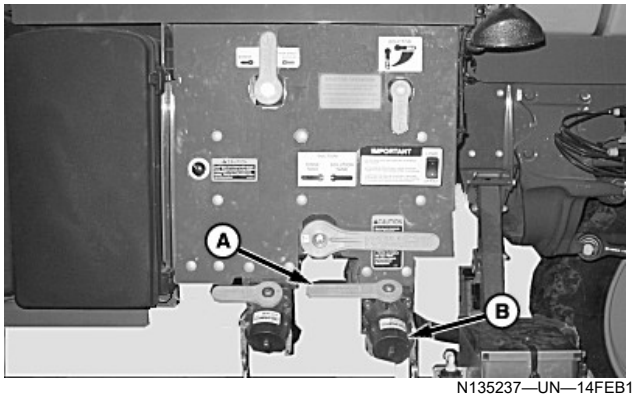
CAUTION: Chemicals and pesticides are hazardous and can poison, causing serious injury or death to you or others. All spraying equipment should be decontaminated before being overhauled or placed in storage. Decontamination should be done in a safe area by washing with water, neutralization, or by means 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:

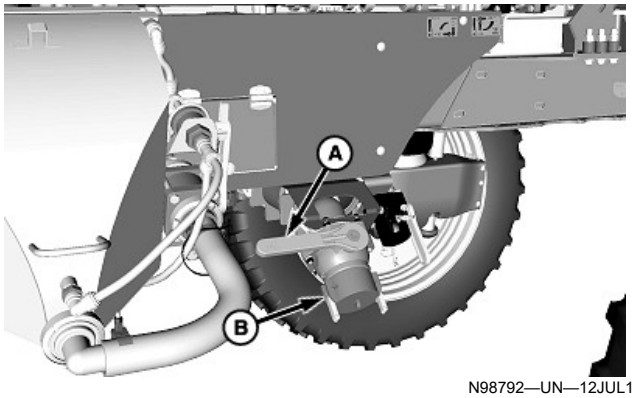
SprayMaster is a trademark of Deere & Company
Incide-Out is a trademark of Precision Laboratories, LLC
Erase is a trademark of Precision Laboratories, LLC
Fluid Film is a trademark of Eureka Chemical Company

1. Mix a household detergent with 95 L (25 gal) of water or use either Incide-Out™ Spray Tank Cleaner (PM434QT) or Erase™ Spray System Cleaner (PM433QT) and circulate through the 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.



N135237—UN—14FEB18

R4023



N98792—UN—12JUL13

R4030, R4038, and R4045,

A—Valve Handle
B—Cap

3. Remove cap (B) and rotate valve handle (A) to the OPEN position to drain the system.
4. Flush the system with clean water.
5. Flush the system with SprayMaster™ Winterizer Fluid (N305634) if the machine is to be stored in a climate colder than 0°C (32°F).

BN55050,0000583-19-21APR21

Ship 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 that the machine can withstand the lowest possible temperatures it will be subjected to.

To avoid damage, empty all solution tanks and lines, then add SprayMaster™ Winterizer Fluid.

On Final Tier 4/Stage IV engine equipped machines, do not disconnect battery until LED indicator at the battery shutoff is off. Selective catalyst reduction system automatically purges lines of diesel exhaust fluid (DEF) immediately after machine is stopped. If adequate time is not allowed for lines to be purged, any DEF remaining in lines can crystallize and plug lines. In freezing weather, DEF will freeze and possibly burst lines.

To add SprayMaster™ Winterizer Fluid to machine spray system, do the following:

1. Perform a winterizing procedure. (See Prepare Machine for Cold-Weather Storage — Winterizing in this section.)
2. Prepare the foam marker system for cold weather. (See Prepare Foam Marker System for Cold-Weather Storage procedure in this section.)
3. 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.
4. Relieve the spray boom pressure. (See Relieve Boom Pressure in the Operating the Machine section of the machine Operator's Manual.)

N151449—UN—27MAY20

Incide-Out is a trademark of Precision Laboratories, LLC
Erase is a trademark of Precision Laboratories, LLC

SprayMaster is a trademark of Deere & Company

A—Plug

NOTE: Plugs are only needed for the R4023 or sprayers equipped with carbon fiber booms. The two open turrets in the spray position on the nozzle body are the only turrets that require a plug.

5. Insert plugs (A) into the open turrets of nozzle bodies on the outer boom and breakaway sections that will be upside-down during shipment.

BN55050,000047F-19-04JUN20

Prepare Machine for Cold-Weather Storage – Winterizing

NOTE: The following procedure is for winterizing a machine which has already been through the chemical cleaning process and only contains water in its solution system.

1. Verify that the fuel tank is filled with a winter grade diesel fuel or treat the tank with a diesel winterizer per product label instructions.

IMPORTANT: Long-term storage in vehicle (over six months) is not recommended. If long-term storage is necessary, periodic testing of diesel exhaust fluid (DEF) is recommended to ensure that urea concentration does not fall out of specification.

2. Diesel exhaust fluid (DEF) has a limited shelf life, but may be stored in vehicle for as long as six months, depending upon storage conditions. (See Storing Diesel Exhaust Fluid (DEF) in the Fuels, Lubricants, and Coolants section of the machine Operator's Manual.) Drain the DEF tank if necessary. (See Drain and Flush Diesel Exhaust Fluid (DEF) Tank in the Engine and Drivetrain section of the machine Operator's Manual.)
3. Drain the eye wash tank.
4. **Front Fill (If Equipped):** Open front fill isolation valve and use front fill purge valve to push any water in the front fill hose into the solution tank.
5. **Load Command™ (If Equipped):** Open the Load Command™ poppet using poppet maintenance menu on the display and drain the water out of the Load Command™ coupler.
6. Drain the rinse tank using the rinse tank fill valve.
7. Operate the eductor function and transfer any eductor hopper water to the solution tank.
8. Empty the solution tank water by opening the solution tank fill valve to let the water escape.
9. Empty the rinse tank water by using the boom rinse function and spraying the rinse tank water out until you lose spray pressure at the boom.

IMPORTANT: Using the John Deere sprayer winterizer fluid is recommended for field use to protect the sprayer plumbing during storage. If an RV antifreeze is used, it should be a Propylene Glycol type rated for at least 8°C (15° F) below the lowest expected ambient temperature the machine will be subjected to during storage. Do not use other cheaper methanol, ethanol, or isopropanol type fluids, as those fluids cause damage to the seals and hoses.

10. Fill the rinse tank with 190 L (50 gal) of winterizer fluid (R/V antifreeze or JD Winterize Fluid available in 9.46 L (2.5 gal) jugs (N305634) or 208 L (55 gal) drums (TY26555).
11. Perform a foam marker storage procedure. (See Prepare Foam Marker System for Cold-Weather Storage in this section.)
12. **Machines equipped with Solution Command System:**
    a. Perform a system rinse. (See Operate Rinse System in the Solution Command System Operation section of the machine Operator's Manual.) The following systems are rinsed:
       - Eductor
       - Agitation
       - Bypass
       - Solution Tank
       - Boom

    NOTE: When rinsing eductor, operator must manually open eductor rinse and sump valves when display shows that portion of the rinse cycle.

    Boom is rinsed when rinse solution is sprayed off at the end of procedure.

    b. After rinse procedure is complete, unfold boom, and spray rinse solution in a safe location where contamination cannot occur.
13. **Machines equipped with Manual Load System:** With the solution pump running, manually actuate the following functions:
    - Eductor—During the "eductor" portion of the system rinse, use the manual rinse valve at the eductor to rinse the eductor bowl with winterizer fluid. Then use the eductor manual valve to suck the hopper empty of winterizer fluid and put it into the solution tank.
    - Agitation—activate for minimum of 10 seconds.

Load Command is a trademark of Deere & Company

- Bypass—activate for minimum of 10 seconds.
- Solution Tank Rinse—activate for minimum of 10 seconds.

14. **Machines equipped with standard boom plumbing:**
    a. Close all the nozzle turrets other than those on each end of every spray pipe.
    b. Spray the winterizer fluid in the solution tank out of the open turrets using the Nozzle Flow Check procedure until you see winterizer fluid coming out of every open spray pipe turret location. (See Nozzle Flow Check Test in the SprayStar™ System section of the machine Operator's Manual.)
    c. Allow the winterizer fluid to spray until the solution tank is empty.
15. **Machines equipped with ExactApply™:**
    a. Select A + B spray mode. (See Spray Mode in the Boom and Nozzles section.)
    b. Verify that the nozzle turret is positioned with nozzle one, two, or three in the forward position.
    c. Spray the winterizer fluid in the solution tank out of the solenoids using the Nozzle Flow Check procedure until the winterizer fluid is coming out of every solenoid. (See Nozzle Flow Check Test in the SprayStar™ System section of the machine Operator's Manual.)
    d. Allow the winterizer fluid to spray until the solution tank is empty.
16. **Front Fill (If Equipped):**
    a. Remove the front fill cap.
    b. Open the front fill isolation valve using the electrical switch, then open the manual front fill valve in order to let the winterizer fluid drain into the front fill hose.
    c. Once winterizer fluid is seen coming out of the end of the front fill, close the manual valve.
    d. Use the air purge valve to push the winterizer fluid back into the solution tank.
17. **Load Command™ (If Equipped):**

    Rinse the Load Command™ system. (See Rinsing Load Command™ in the Load Command™ section of the machine Operator's Manual.)
18. For high flow solution pump machines: verify that the flowmeter valve is in the OPEN position.
19. Close all nozzle turrets other than the ones on each end of every spray pipe.
20. Spray the winterizer fluid in the solution tank out of the open turrets using the Nozzle Flow Check procedure until you see winterizer fluid coming out of every open spray pipe turret location. (See Nozzle Flow Check Test in the SprayStar™ System section of the machine Operator's Manual.)
21. If equipped with fence row nozzles, spray through one or both fence row nozzles until winterizer fluid is coming out of the fence row nozzle location.
22. Spray winterizer fluid using the Boom Only rinse function until a Pump Dry warning is displayed.
23. If equipped with boom air purge, use this function to remove excess winterizer fluid from the boom plumbing.

BN55050,00003D2-19-15MAY19

Prepare Machine for Storage

1. Clean the machine thoroughly, inside and out. (See Clean Vehicle of Hazardous Chemicals, Including Pesticides in this section.)
2. Clean and flush the solution system. (See Clean Solution System in this section.)
3. Remove, clean, and install the fill strainer, pressure strainers, and flowmeters.
4. For machines that are stored in cold temperatures, perform a winterizing procedure. (See Prepare Machine for Cold-Weather Storage – Winterizing in this section.)
5. Remove and clean the nozzle tips and screens. Store the tips and screens off the machine in a dry place.

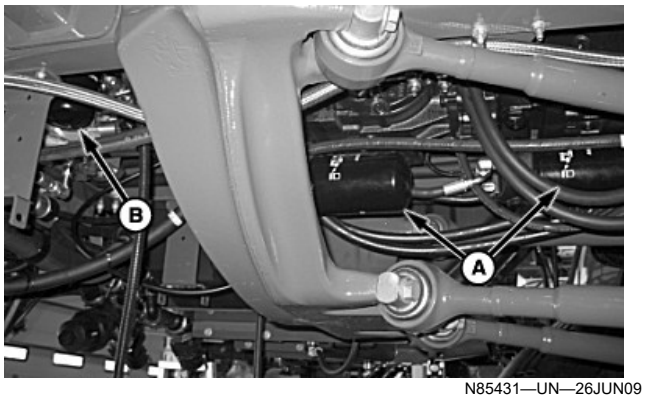
N151449—UN—27MAY20

A—Plug

SprayStar is a trademark of Deere & Company

NOTE: Plugs are only needed for the R4023 or sprayers equipped with carbon fiber booms. The two open turrets in the spray position on the nozzle body are the only turrets that require a plug.

6. Insert plugs (A) into the open turrets of nozzle bodies on the outer boom and breakaway sections that will be upside-down during storage.
7. Prepare the foam marker system for cold weather. (See Prepare Foam Marker System for Cold-Weather Storage in this section.)



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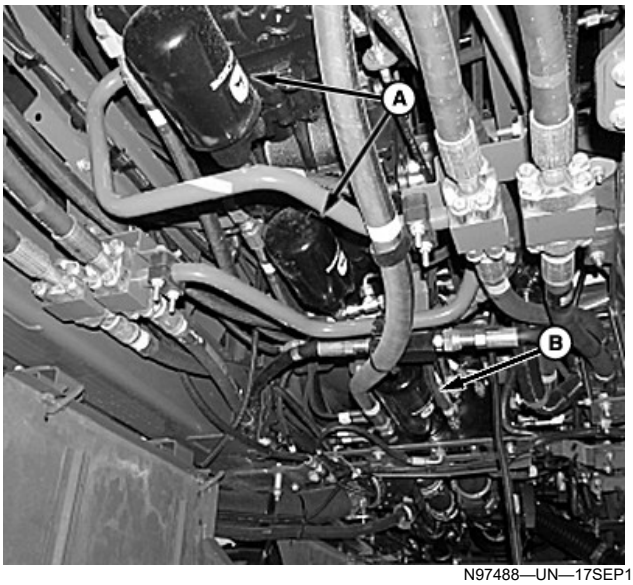
R4023

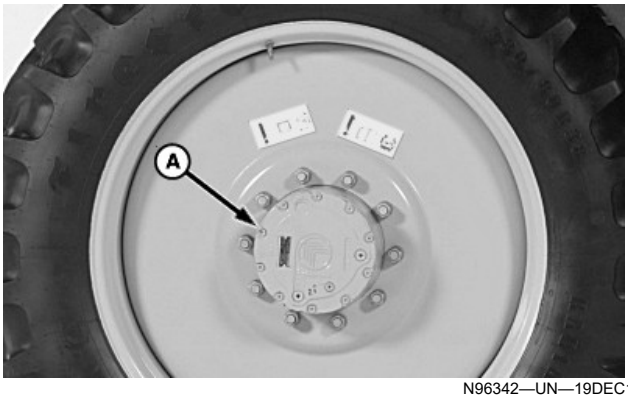


N97488—UN—17SEP12

R4030, R4038, and R4045

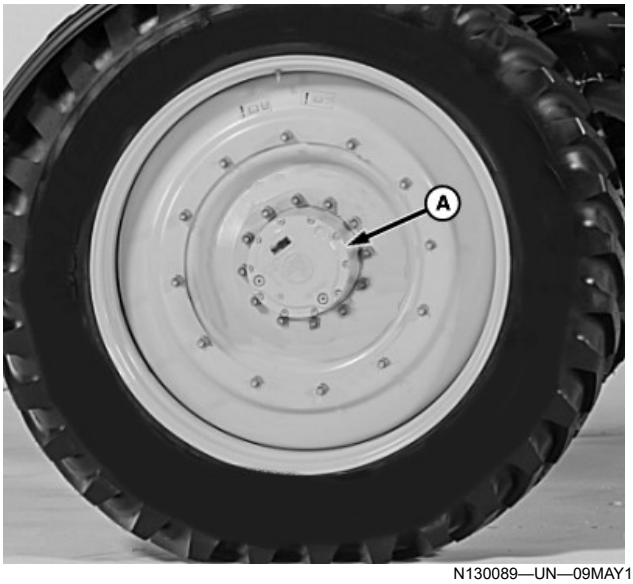
A—Hydrostatic Filter
B—Hydraulic Filter

8. Replace the hydrostatic filters (A) and hydraulic filter (B).



N96342—UN—19DEC11

R4023



N130089—UN—09MAY17

R4030, R4038, and R4045

A—Planetary Hub

9. Drain the planetary hubs (A). (See Change Planetary Hub Oil in the Lubrication and Maintenance section of the machine Operator's Manual.)
10. Fill the planetary hub oil to the proper level.
11. Lubricate all grease fittings. Apply grease to exposed areas of hydraulic cylinder rods and chrome suspension rods.
12. Paint as necessary to prevent rust.
13. Treat exposed surfaces with Fluid Film® (TY22032 or TY27529) for prevention of corrosion and rust.

NOTE: Refer to instructions for lifting the machine. (See Install Optional Tires in the Wheels and Tires section of the appropriate machine Operator's Manual.)

14. Lift each corner of the machine and support with a

Fluid Film is a trademark of Eureka Chemical Company

JDG10393 Jackstand or equivalent to take weight off of the tires. Do not deflate the 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 that can result in serious injury or death.

15. Wash the engine using a safe solvent.
16. Remove, clean, and install air cleaner elements.
17. With engine warm, drain oil from the crankcase. Replace the oil filter and fill the crankcase to the proper level.
18. Drain and flush the cooling system (engine block and radiator).

NOTE: (For warm-weather climates only.) If antifreeze has not been, and will not be, added in the engine, be sure to remove the plug to drain the engine oil cooler. Add clean soft water with John Deere Summer Engine Coolant Conditioner, or equivalent, in place of antifreeze.

19. Fill the cooling system with antifreeze to the proper level. Use antifreeze that does not contain stop-leak additives.
20. Operate the engine at a low idle for a few minutes to circulate the coolant and crankcase oil.

IMPORTANT: On the Final Tier 4/Stage IV engine equipped machines, do not disconnect battery until LED indicator at the battery shutoff is off. Selective catalyst reduction system automatically purges lines of diesel exhaust fluid (DEF) immediately after machine is stopped. If adequate time is not allowed for lines to be purged, any DEF remaining in lines can crystallize and plug lines. In freezing weather, DEF freezes and possibly bursts lines.

21. Disconnect the negative (—) battery cables and secure away from the battery terminal.

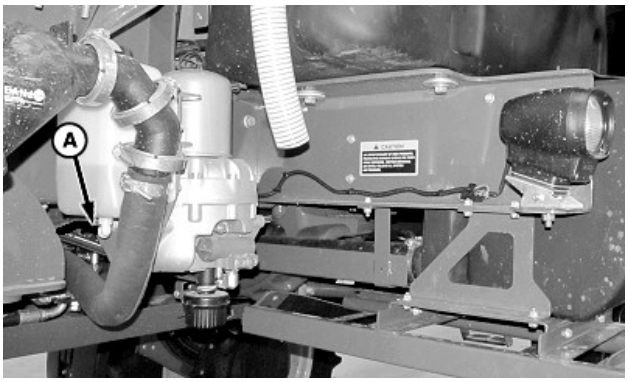
IMPORTANT: Long-term storage in vehicle (over six months) is not recommended. If long-term storage is necessary, periodic testing of diesel exhaust fluid (DEF) is recommended to ensure that urea concentration does not fall out of specification.

22. Diesel exhaust fluid (DEF) has a limited shelf life, but it may be stored in the vehicle for as long as six months, depending upon storage conditions. (See Storing Diesel Exhaust Fluid [DEF] in the Fuels, Lubricants, and Coolants section of the machine Operator's Manual). Drain the DEF tank if necessary. (See Drain and Flush Diesel Exhaust Fluid [DEF] Tank in the Engine and Drive Train section of the machine Operator's Manual.)
23. Seal the following openings with tape and/or plastic bags.
    - Exhaust pipe
    - Air cleaner intake
    - Engine dipstick tube
    - Engine oil fill tube
    - Crankcase breather tube
24. 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.

BN55050,0000480-19-10JUN20

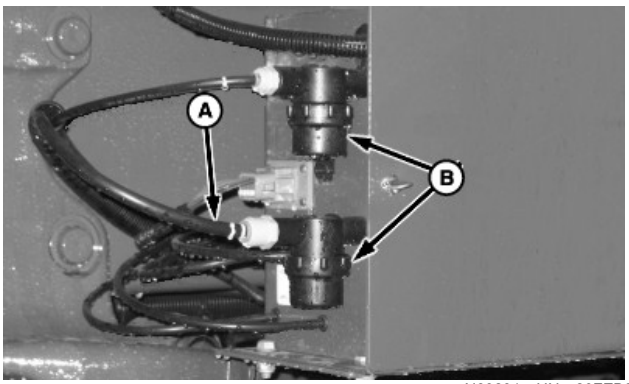
Prepare Foam Marker System for Cold-Weather Storage

IMPORTANT: Damage to the foam marker can occur if liquid is allowed to freeze in the control box and lines. Drain liquid from the tank and lines. Flush and purge all liquid from the foam marker system.



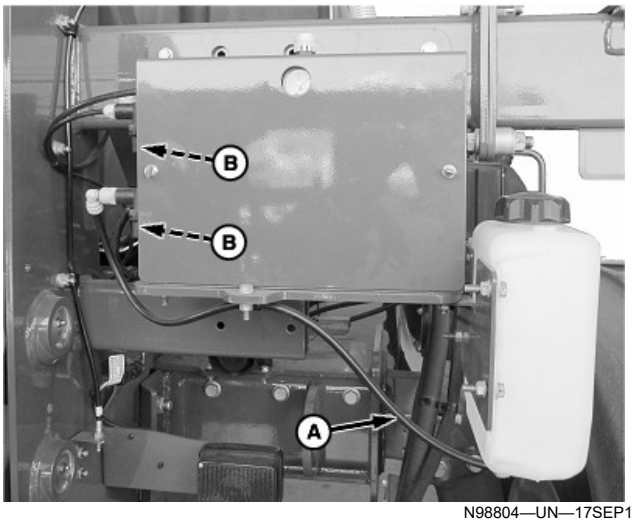
N116056—UN—25FEB15

R4023



N83231—UN—20FEB09

R4023



N98804—UN—17SEP12

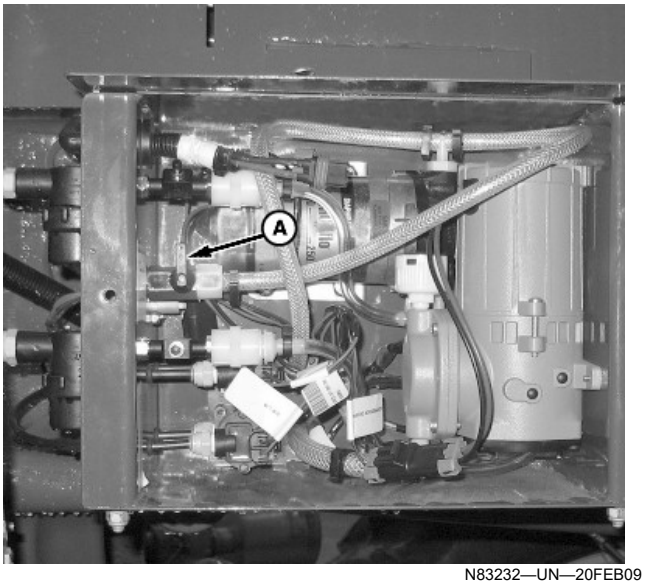
R4030, R4038, and R4045

A—Hose
B—Filter

1. Disconnect the hose (A) from the bottom of the concentrate tank to drain the tank.
2. Empty the rinse tank by opening the rinse tank fill valve.
3. Remove the hose (A) from the foam control box and blow out with pressurized air. Reinstall the line to the control box and concentrate tank when empty.
4. Clean the filters (B).

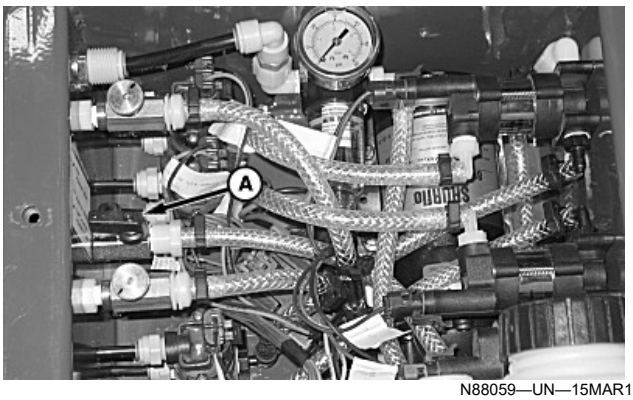
NOTE: Following the manufacturers directions, mix SprayMaster™ Winterizer Fluid at the correct ratio to protect the solution system down to the lowest expected temperature.

5. Add approximately 20 L (5 gal) of the appropriate mixture of SprayMaster™ Winterizer Fluid to the rinse tank. Fill the foam concentrate tank with the same mixture.
6. Start the machine.
7. Set the foamer to manual operation mode. (See Foam Marker in the SprayStar™ System section of the machine Operator's Manual.)



N83232—UN—20FEB09

R4023



N88059—UN—15MAR10

R4030, R4038, and R4045

A—Priming Valve

8. Remove the foamer control box cover and open the priming valve (A). Operate with the valve open until no foam mixture comes out.
9. Close the priming valve.
10. Operate the foam marker system until no foam is generated from either foam mixing head.
11. Check the air and liquid lines for holes. Repair as necessary.

BN55050,00003D3-19-01MAY19

SprayMaster is a trademark of Deere & Company
SprayStar is a trademark of Deere & Company

Remove Machine from Storage

NOTE: When removing the sprayer from storage, it is normal to find gear oil leaking out of the planetary drive hub inside the rim or a puddle of oil on the rims after the machine has sat for a period of time. The gear reduction hubs have a mechanical seal between the spindle and hub. It is normal for oil to leak out of these seals when a machine has been in storage.

1. Remove the sealing tape and plastic bags from the openings.
2. Check the engine oil level. If low, check for leaks. Add oil as required.
3. Check the coolant level. If low, check for leaks. Add coolant as required.
4. Clean the negative (—) battery terminals and cables and connect.
5. Fill the fuel tank with a proper grade diesel fuel.
6. **Final Tier 4 and Stage IV engines only**—If the diesel exhaust fluid (DEF) tank has not been drained, test the urea concentration. (See Testing Diesel Exhaust Fluid [DEF] in the Fuels, Lubricants, and Coolants section of the machine Operator's Manual.) If the concentration is not within specifications, drain and replace with new or known good DEF. If the DEF tank has been drained, fill the tank. (See Drain and Flush Diesel Exhaust Fluid [DEF] Tank in the Engine and Drive Train section of the machine Operator's Manual.)
7. Drain the SprayMaster™ Winterizer Fluid from the solution system and flush the system.

IMPORTANT: When first starting the machine after removing from storage, run the machine at no more than low idle for 4 minutes. Turn on the air conditioning system during this time to prevent compressor seal failure.

8. Start the engine and warm to operating temperature. Check for leaks.
9. Clean the engine compartment and machine thoroughly, inside and out.
10. Check the oil level in the hydrostatic/hydraulic reservoir. If low, check for leaks. Add oil as required.
11. Check tire inflation.

NOTE: Refer to the instructions for lifting the machine. (See Install Optional Tires in the Wheels and Tires section of the machine Operator's Manual.)

12. Lift each corner of the machine and remove the stands.
13. Ensure that all hardware is tight.
14. Lubricate all grease fittings.
15. Remove plugs from the nozzle body turrets if necessary.
16. Add clean water in the solution tank and operate the system to check for leaks before installing the nozzle tips and screens.
17. Inspect the nozzle tips, making sure that they are all the same size. Install the tips and screens.
18. Perform a boom air bleed. (See Recommendations for Eliminating Air from Solution System in the Wet System section of the machine Operator's Manual.)
19. Operate the spraying system and observe spray patterns. Adjust or replace the tips as necessary.
20. Review the machine Operator's Manual for operating adjustments and safety information.
21. Calibrate the sprayer.
22. Check the fire extinguisher gauge (if equipped) for the proper charge.
23. Check the air conditioning refrigerant charge. Have the system charged if necessary.

BN55050,0000481-19-10JUN20

SprayMaster is a trademark of Deere & Company

Machine Specification

Machine

NOZZLES—24.4 m (80 ft) BOOM	
Standard	
508 mm (20 in) Spacing Off Center	
Number of Nozzles	48
381 mm (15 in) Spacing On Center	
Number of Nozzles	65
Installation	Factory

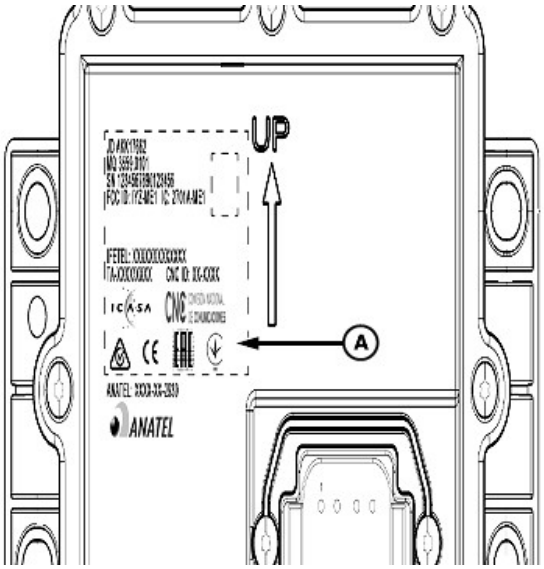
NOZZLES—27.4 m (90 ft) BOOM	
Standard	
508 mm (20 in) Spacing Off Center	
Number of Nozzles	54
381 mm (15 in) Spacing On Center	
Number of Nozzles	73
Installation	Factory

NOZZLES—30.5 m (100 ft) BOOM	
Standard	
508 mm (20 in) Spacing Off Center	
Number of Nozzles	60
381 mm (15 in) Spacing On Center	
Number of Nozzles	81
Installation	Factory

NOZZLES—36.6 m (120 ft) BOOM	
Standard	
508 mm (20 in) Spacing Off Center	
Number of Nozzles	72
381 mm (15 in) Spacing On Center	
Number of Nozzles	97
Installation	Factory

BN55050,00003D8-19-02MAY19

Bluetooth® Compliance Information



N130203—UN—04MAY17

A—Compliance Information

The following outlines the necessary compliance information regarding the remote control and receiver and the use of Bluetooth® technology on the ExactApply™ system. Compliance information (A) is located on the Bluetooth® receiver on the rear of the machine. Compliance information is listed by country.

Bluetooth® Compliance Information	
Country	**Compliance Statement**
United States	Notice: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications made to this equipment not expressly approved by (manufacturer name) may void the FCC authorization to operate this equipment.
Canada	Notice: This device complies with Part 15 of the FCC Rules and with Industry Canada licence-exempt RSS standard. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. This Class [B] digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.
Australia	N/A
New Zealand	N/A
Hungary	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Bulgaria	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Romania	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
South Africa	N/A

Bluetooth is a trademark of Bluetooth SIG

ExactApply is a trademark of Deere & Company

Bluetooth® Compliance Information	
Country	**Compliance Statement**
Argentina	ME1 certification number C-21865
	MM1 certification number C-21866
Germany	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
France	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Netherlands	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
United Kingdom	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Spain	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Equador	N/A
Lithuania	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Latvia	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Kazakhstan	N/A
Uruguay	N/A
Mexico	N/A
Czech Republic	N/A
Belgium	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Paraguay	N/A
Poland	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Denmark	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Ireland	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Austria	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Switzerland	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Croatia	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Finland	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Norway	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Sweden	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Luxembourg	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
El Salvador	N/A
Dominican Republic	N/A
Costa Rica	N/A
Peru	N/A
Estonia	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Chile	N/A
Colombia	N/A
Slovakia	Frequency range: 2400 - 2483.5 MHz Max. transmission level: 10mW
Bolivia	N/A
Panama	N/A
Honduras	N/A

Bluetooth® Compliance Information	
Country	**Compliance Statement**
Guatemala	N/A
Nicaragua	N/A

N129730—UN—17APR17

South Africa

TA-XXXX/XXXX

Russian Federation

N129731—UN—17APR17

Ukraine

N129732—UN—17APR17

Brazil

N129733—UN—17APR17

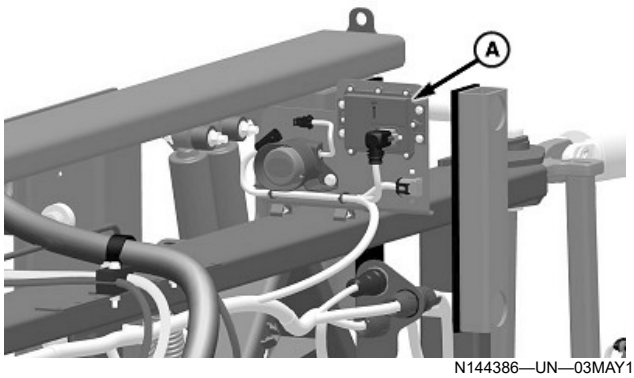
Argentina

COMISIÓN NACIONAL DE COMUNICACIONES	ME1	C-21865
	MM1	C-21866

N137303—UN—18JUL18

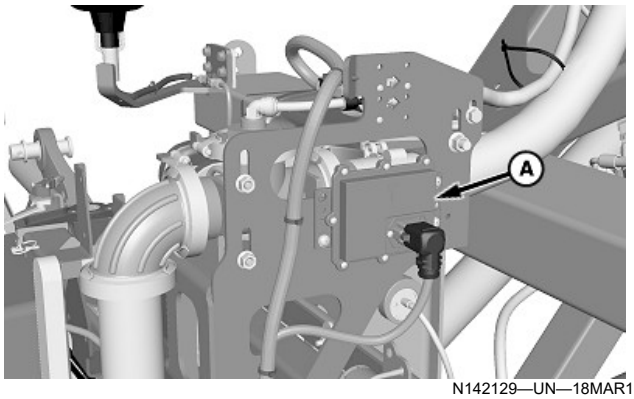
BN55050,00003F0-19-03JUN19

Identification Numbers



N144386—UN—03MAY19

R4023



N142129—UN—18MAR19

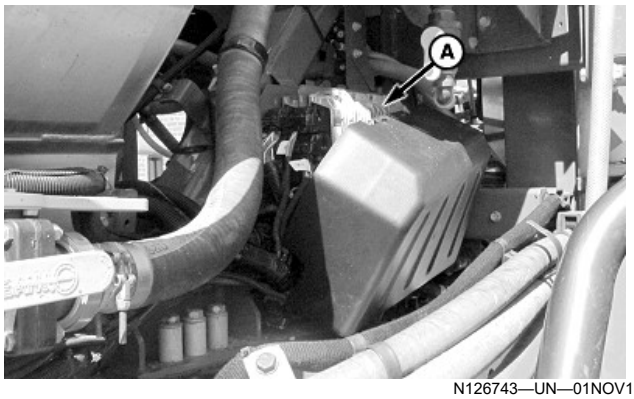
R4030, R4038, and R4045

A—Remote Control Receiver

The remote control receiver serial number is located on the remote control receiver (A) on the rear of the machine on the suspended center frame.

Remote Control Receiver Serial Number

_____



N126743—UN—01NOV16

A—Master Nozzle Control Unit

The master nozzle control unit (A) is located on the solution skid near the left-hand rear tire.

Master Nozzle Control Unit Serial Number

_____

BN55050,00003D9-19-03MAY19

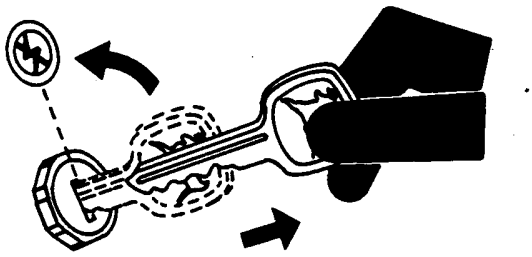
Keep Proof of Ownership

TS1680—UN—09DEC03

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.
3. Other steps you can take:
   - Mark your machine with your own numbering system
   - Take color photographs from several angles of each machine

DX,SECURE1-19-18NOV03

Keep Machines Secure



TS230—UN—24MAY89

1. Install vandal-proof devices.
2. When machine is in storage:
   - Lower equipment to the ground
   - Set wheels to widest position to make loading more difficult
   - Remove any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify your John Deere dealer of any losses.

DX,SECURE2-19-18NOV03

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John Deere Service Literature Available

Technical Information

Technical information can be purchased from John Deere. Publications are available in print or CD-ROM format.

Orders can be made using one of the following:

- John Deere Technical Information Store: **www.JohnDeere.com/TechInfoStore**
- Call 1-800-522-7448
- Contact your John Deere dealer

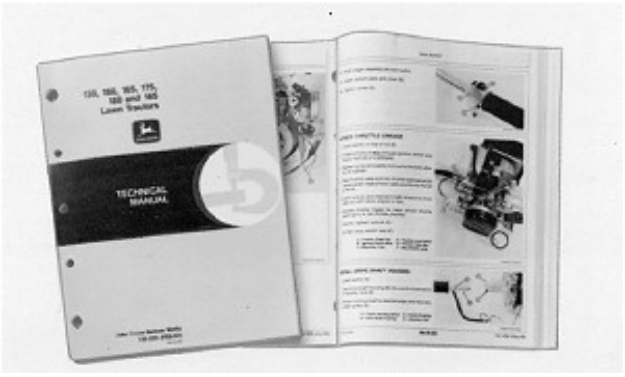
Available information includes:

TS189—UN—17JAN89

PARTS CATALOGS list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.

TS191—UN—02DEC88

OPERATOR'S MANUALS providing safety, operating, maintenance, and service information.



TS224—UN—17JAN89

TECHNICAL MANUALS outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in a separate component technical manual.

TS1663—UN—10OCT97

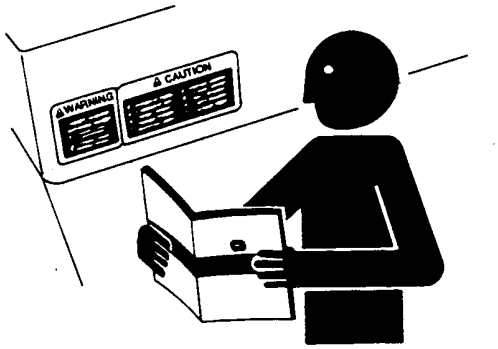
EDUCATIONAL CURRICULUM including five comprehensive series of books detailing basic information regardless of manufacturer:

- Agricultural Primer series covers technology in farming and ranching.
- Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
- Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
- Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.
- Fundamentals of Compact Equipment manuals provide instruction in servicing and maintaining equipment up to 40 PTO horsepower.

DX,SERVLIT-19-07DEC16

John Deere Service Keeps You On The Job

John Deere Is At Your Service



TS201—UN—15APR13

CUSTOMER SATISFACTION is important to John Deere.

Our dealers strive to provide you with prompt, efficient parts and service:

–Maintenance and service parts to support your equipment.

–Trained service technicians and the necessary diagnostic and repair tools to service your equipment.

CUSTOMER SATISFACTION PROBLEM RESOLUTION PROCESS

Your John Deere dealer is dedicated to supporting your equipment and resolving any problem you may experience.

1. When contacting your dealer, 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, explain problem to dealership manager and request assistance.

4. If you have a persistent problem your dealership is unable to resolve, ask your dealer to contact John Deere for assistance. Or contact the Ag Customer Assistance Center at 1-866-99DEERE (866-993-3373) or e-mail us at www.deere.com/en_US/ag/contactus/.

DX,IBC,2-19-02APR02