ExactApply™ Nozzle Control System (Export Edition)

JOHN DEERE

OPERATOR'S MANUAL

ExactApply™ Nozzle Control System

OMKK37832 ISSUE F1 (ENGLISH)

John Deere Des Moines Works
Export
PRINTED IN U.S.A.

Introduction

Foreword

N153560—UN—01DEC20

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 an unauthorized dry spreader box, or modifying a 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, R4038, R4044, 408R, 410R, and 412R equipped with a 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.

BN55050,0000573-19-21APR21

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

Contents

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.

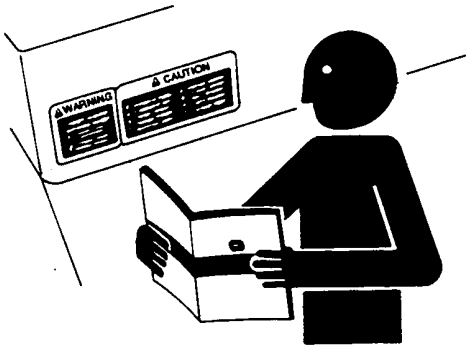
WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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.

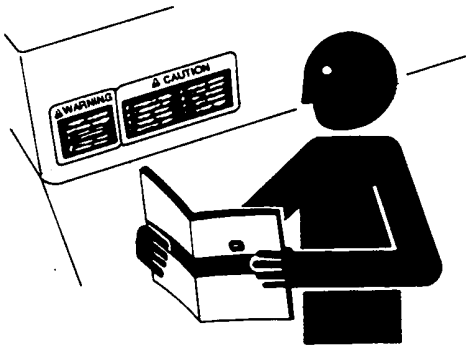
Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

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

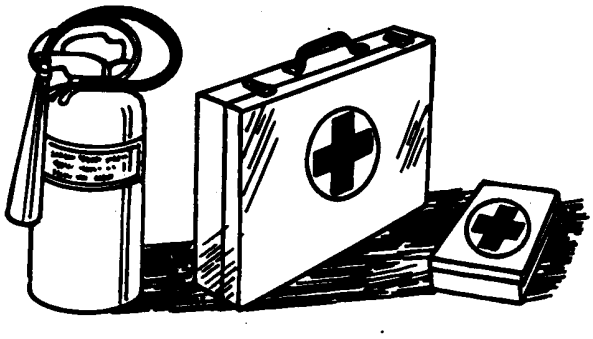


TS201—UN—15APR13

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

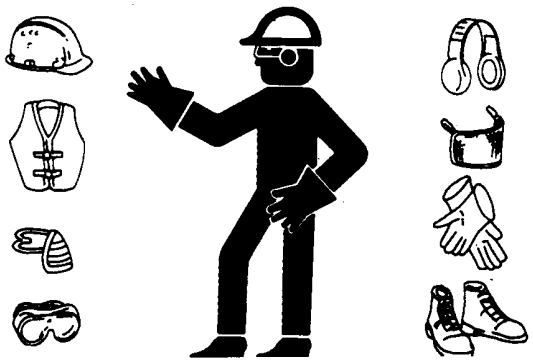
Be prepared if a fire starts.

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



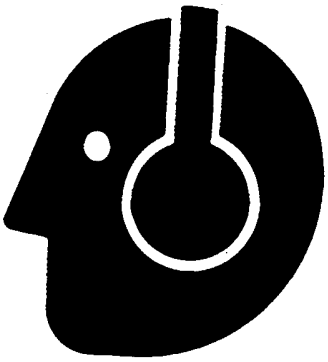
TS206—UN—15APR13

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

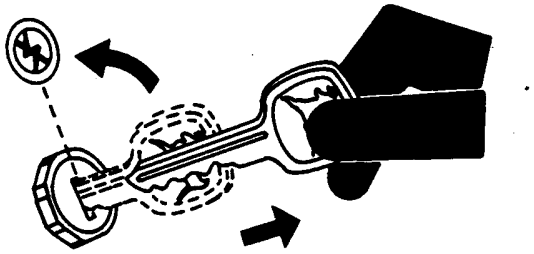
Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.

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



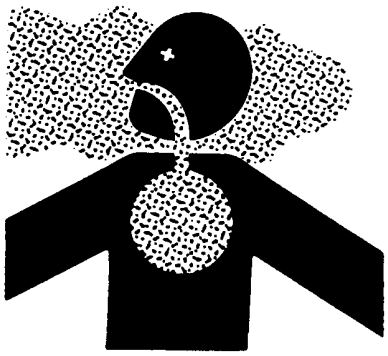
TS230—UN—24MAY89

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

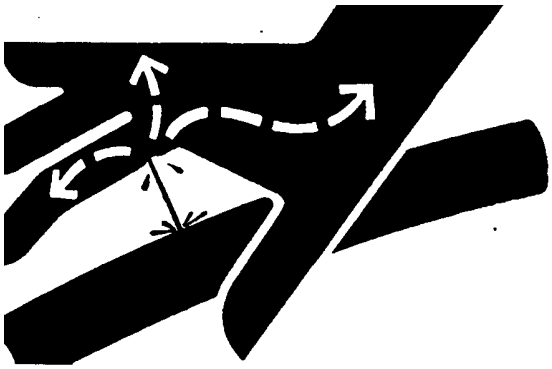
Avoid Heating Near Pressurized Fluid Lines

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.

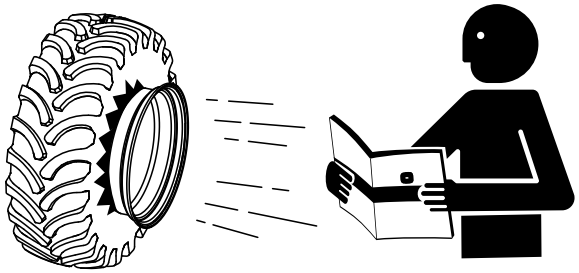
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

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.

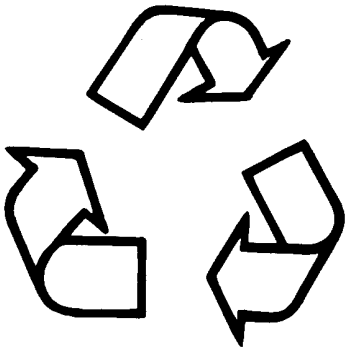
Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

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:

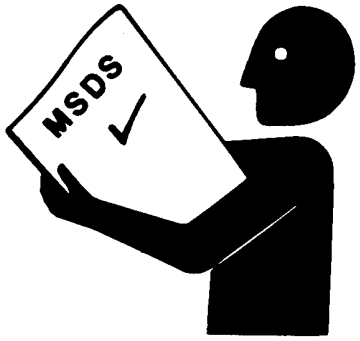
- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting 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

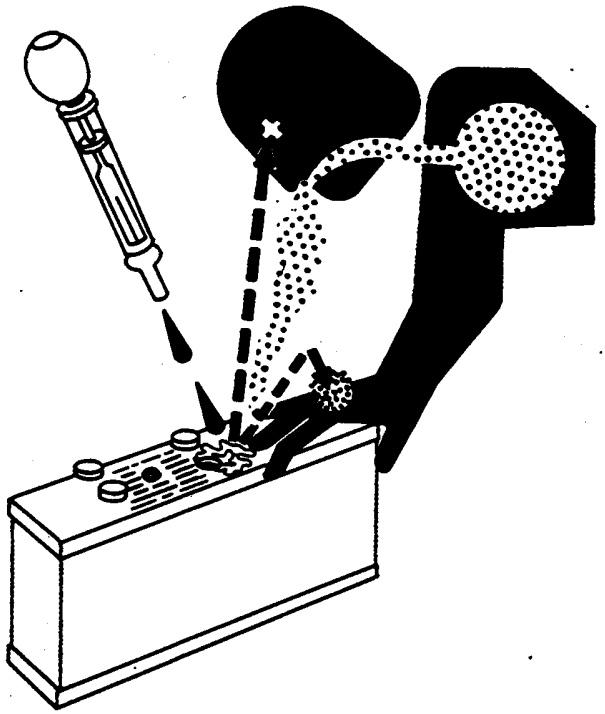
Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

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.

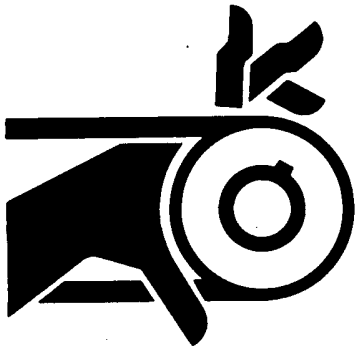
If acid is swallowed:

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.

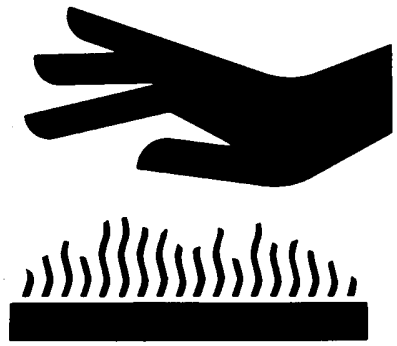
Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.

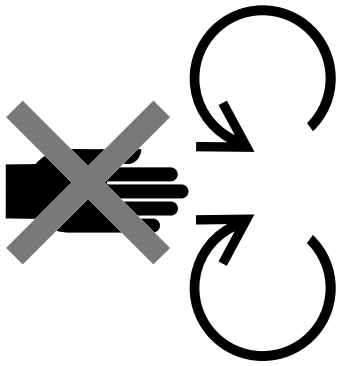
DX,WW,ACCLA-19-15APR03

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

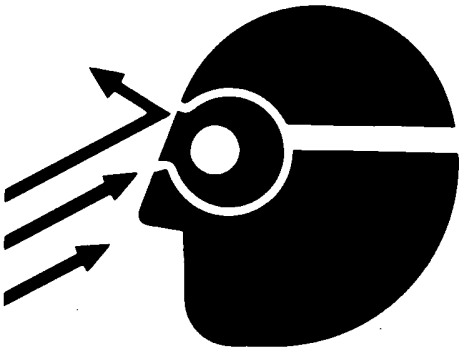
Exhaust Filter Ash Handling and Disposal

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.

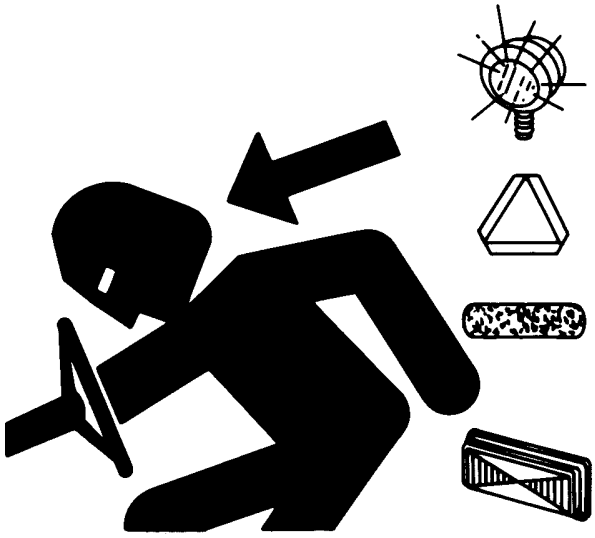
Always shut engine off when leaving machine. Remove key when leaving machine unattended. Park brake engages when engine is turned off regardless of multi-function lever position.

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



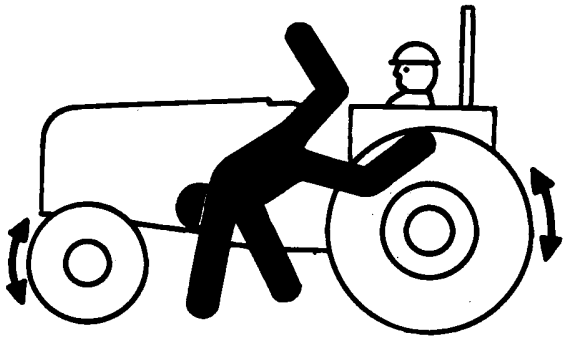
TS951—UN—12APR90

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

Passenger Seat

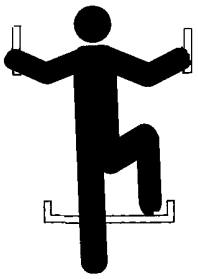
TS1730—UN—24MAY13

The passenger seat is intended only for transport of a passenger in on-road operations (that is, transport from farm to field).

If it is necessary to transport a passenger, the passenger seat is the only means of transporting a passenger provided by John Deere.

DX,SEAT,EU-19-28FEB17

Use Steps and Handholds Correctly



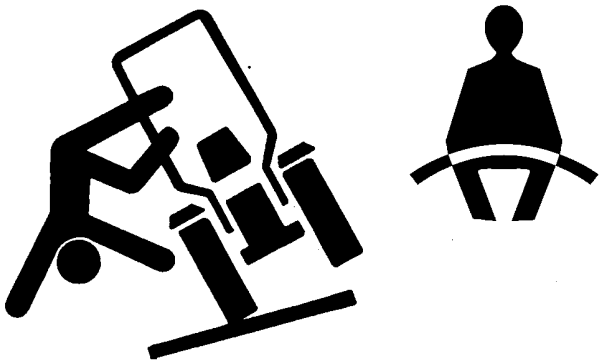
T133468—UN—15APR13

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.

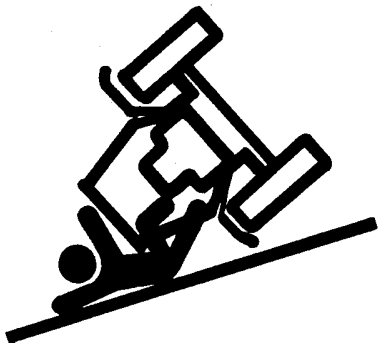
- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt latch to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.

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

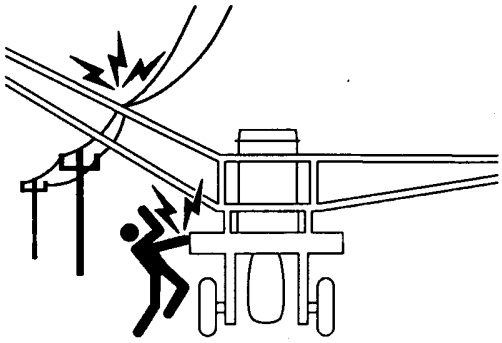
Avoid holes, ditches, and obstructions which may cause sprayer roll-over, especially on hillsides. Avoid sharp turns on hills.

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.

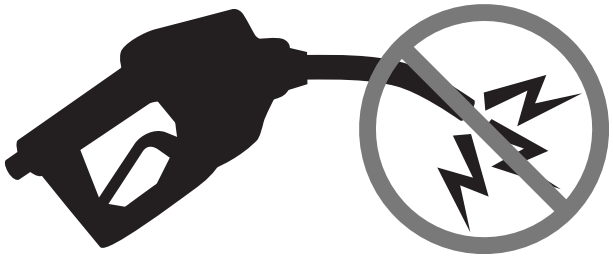
Never fill fuel container in pickup truck with plastic bed liner. Always place fuel container on ground before refueling. Touch fuel container with fuel dispenser nozzle before removing can lid. Keep fuel dispenser nozzle in contact with fuel container inlet when filling.

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.

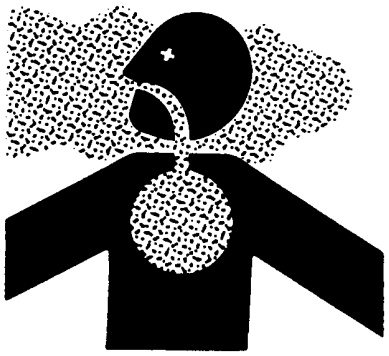
Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

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.

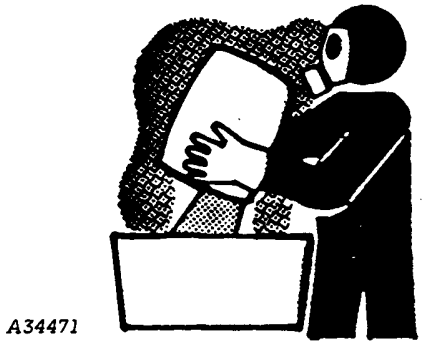
Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling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

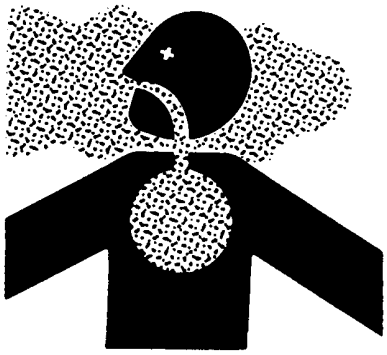
Always follow all label directions for effective, safe, and legal use of agricultural chemicals.

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.

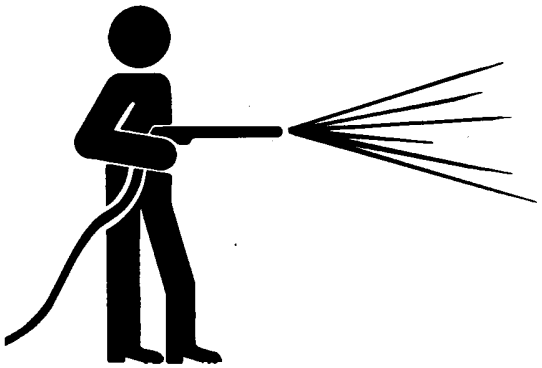
To reduce risk of chemical exposure:

- 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

R4023

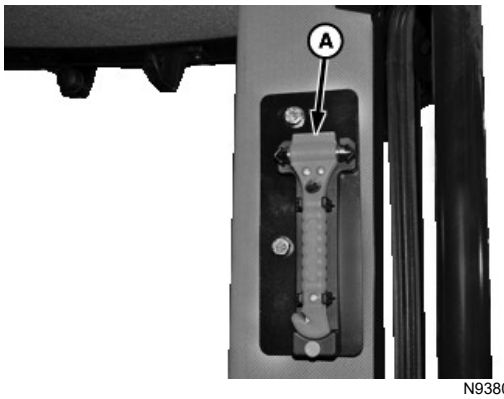
N84876—UN—04JUN09

A—Pin

Remove pin (A). The window can now be pushed out of retaining clips and allowed to fall free.

(See your John Deere dealer for window replacement.)

R4030, R4038, R4044, R4045, and R4060



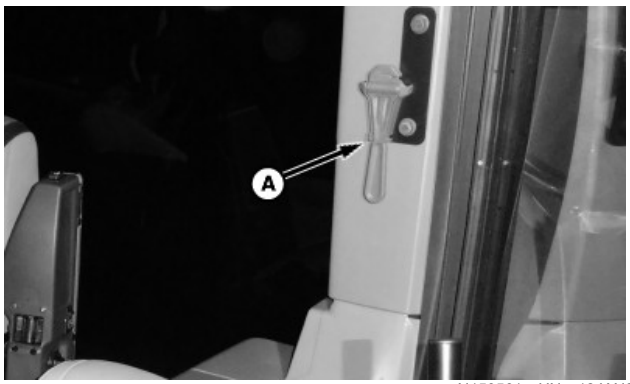
N93801—UN—15AUG11

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.

408R, 410R, 412R, 612R, and 616R



N153561—UN—12JAN21

A—Hammer

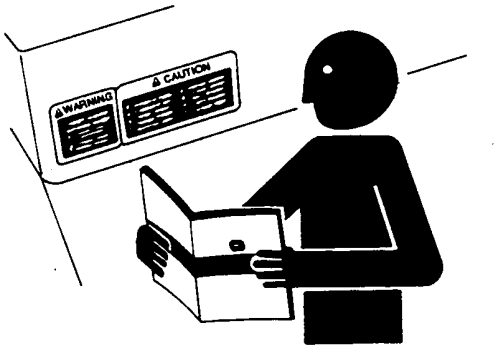
CAUTION: Cover eyes, face and uncovered skin from jagged or broken glass when using break glass hammer.

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.

BN55050,0000580-19-21APR21

Safety Signs

Replace Safety Signs



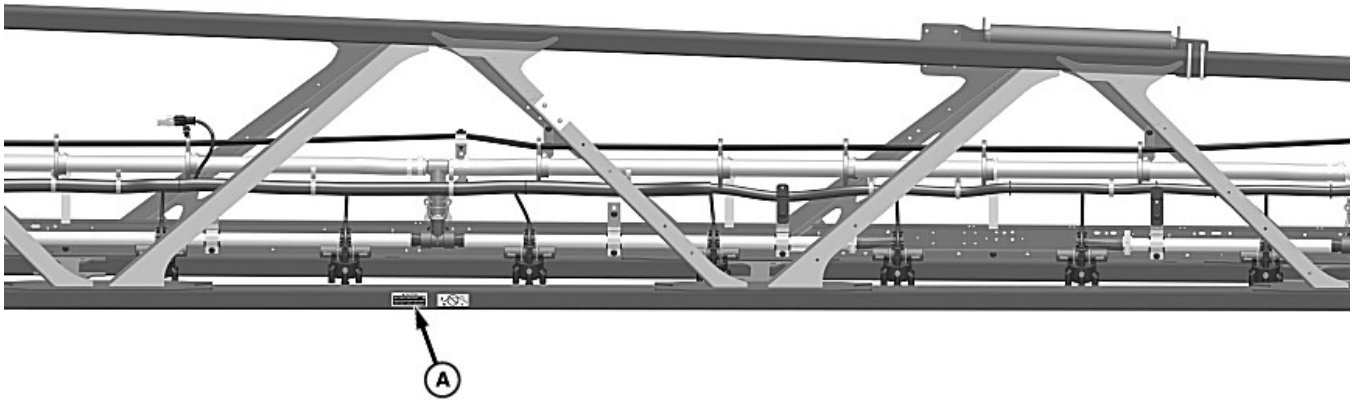
TS201—UN—15APR13

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



N155126—UN—21APR21

⚠ CAUTION

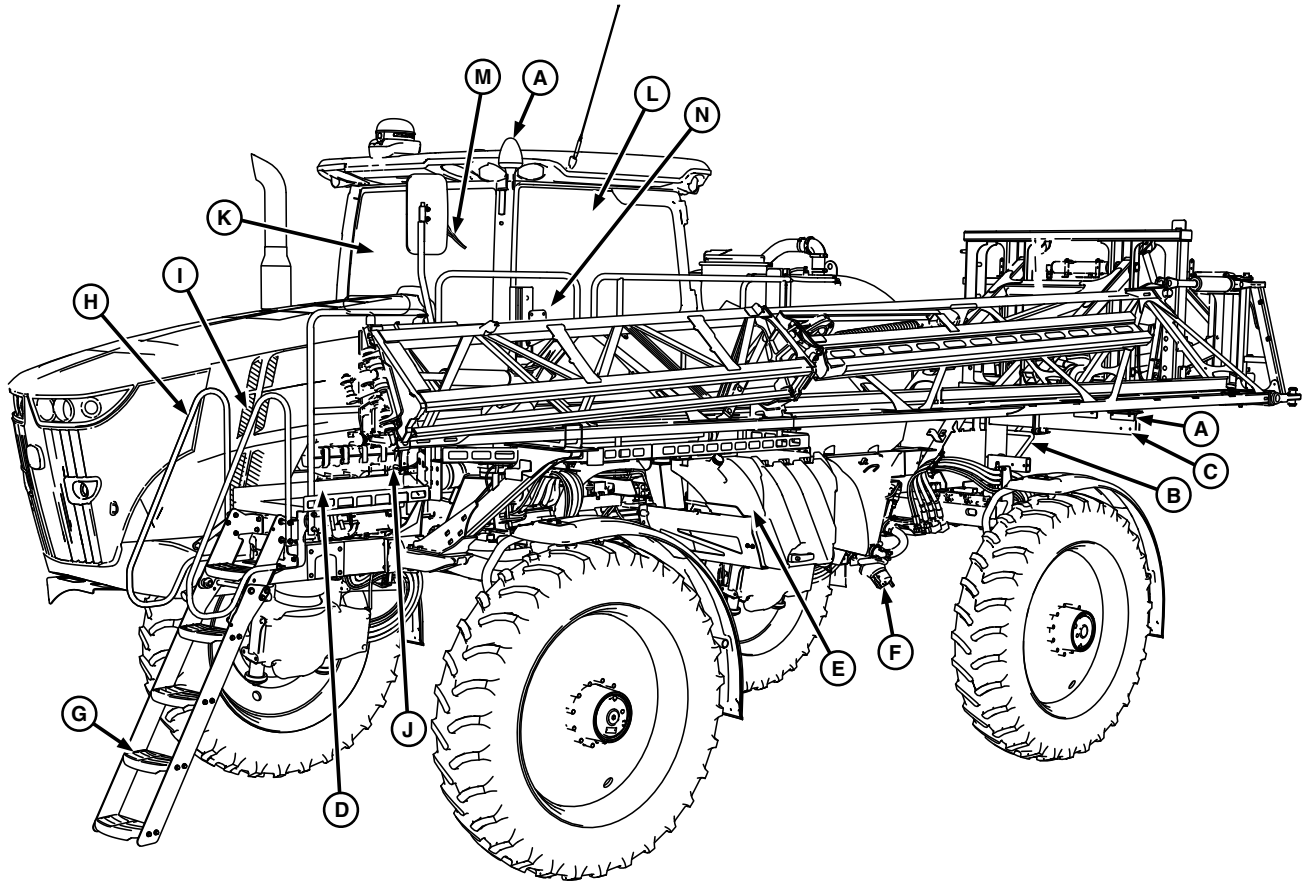
Spray system is under pressure.
Before servicing, conduct boom pressure relief function to relieve system pressure.

SSKK39804—19—30MAR21

Decal A

BN55050,0000574-19-19APR21

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.

N123279—UN—16MAY16

Key Switch

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

H117799—UN—15APR16

Accessories

Accessories—allows accessories such as radio and windshield wiper to operate without engine running.

H117800—UN—28MAR16

Stop

Stop—shuts OFF engine and all accessory functions.

H117801—UN—28MAR16

Run

Run—allows all accessories to operate and engine to run once it has been started.

H117802—UN—28MAR16

Start

Start—momentary switch position that starts the engine. Once the engine starts and the switch is released, it returns to the Run position.

CS12167,00009B4-19-27JAN17

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 setting for oncoming vehicles.

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

R4023 Sprayers

N129120—UN—04APR17

Switch—select light operation mode.

N120653—UN—28APR16

OFF

OFF—select to turn all exterior lighting OFF.

NOTE: If warning light switch is ON, then warning lights remain ON.

N132486—UN—18MAY18

Egress Lighting

Egress Lighting—select to turn egress lighting ON for 90 seconds.

N132489—UN—08APR19

Road Lights

Road Lights—select to turn ON headlights and clearance lights. These lights are not programmable.

N132487—UN—18MAY18

Work Lights 1

Work Lights 1—select to turn ON work lights to the selected preset. Lights are programmable using the lights application.

N132488—UN—18MAY18

Work Lights 2

Work Lights 2—select to turn ON work lights to the selected preset. Lights are programmable using the lights application.

R4030, R4038, R4044, R4045, and R4060 Sprayers

N121547—UN—16MAY16

Switch

Switch—select light operation mode.

N120653—UN—28APR16

OFF

OFF—select to turn all exterior lighting OFF.

NOTE: If warning light switch is ON, then warning lights remain ON.

N120885—UN—28APR16

Road Lights

Road Lights—select to turn ON headlights and marker lights. These lights are not programmable.

N123280—UN—16MAY16

Work Lights

Work Lights—select to turn ON work lights to selected preset. Lights are programmable using the lights application.

MM95366,000044D-19-10APR19

Corner Post Display

N120448—UN—12MAY16

Stop Operation

Stop Operation (Red)—illuminates and requires the machine be stopped at once and the problem corrected. DTC (Diagnostic Trouble Code) shown on the armrest display until the problem is resolved.

N120449—UN—12MAY16

Operator Alert

Operator Alert (Yellow)—illuminates and flashes when a problem exists with the machine. Requires the machine be stopped at earliest convenience. DTC is shown on the armrest display.

N120447—UN—12MAY16

Information Alert

Information Alert (Blue)—illuminates and flashes when diagnostic trouble code is active. Alerts you to be aware of a condition. When the alert is acknowledged, the screen message disappears and the alert turns OFF.

N143994—UN—08APR19

Engine Speed Indicator

Engine Speed Indicator—indicates the engine rpm speed.

N121561—UN—18NOV16

Vehicle Speed Indicator

Vehicle Speed Indicator—indicates the machine speed (km/h or mph).

N120487—UN—06DEC16

Starting Aid Indicator

Starting Aid Indicator (If Equipped)—illuminates when the engine control unit (ECU) activates the starting aid on the engine.

N120450—UN—28APR16

High Exhaust System Temperature Indicator

High Exhaust System Temperature (HEST) Indicator—illuminates when high exhaust temperatures occur. High temperatures occur when exhaust filter cleaning is being performed.

N120475—UN—06DEC16

Exhaust Filter Cleaning Indicator

Exhaust Filter Cleaning Indicator (Final Tier 4/Stage V)—illuminates when exhaust filter system is actively performing exhaust filter cleaning. When indicator is illuminated and flashing, a parked cleaning is required.

IMPORTANT: Final Tier 4/Stage V: Damage to exhaust cleaning components may occur if the engine is turned OFF while performing exhaust filter cleaning or shortly after cleaning is complete. Alarm sounds and a warning message appears on the display. Start the machine and follow messages on the display to allow the components to cool.

N120488—UN—06DEC16

Wheel Slip Control Indicator

Wheel Slip Control Indicator—illuminates when wheel slip control is in ready state. The indicator flashes when actively controlling to eliminate slip.

N120477—UN—06DEC16

Transport Lock Indicator

Transport Lock Indicator—press the transport lock switch when transporting the machine on roadway. Indicator illuminates when selected.

N120452—UN—28APR16

Left-Hand Turn Indicator

Left-Hand Turn Indicator—left-hand turn signal is active. Simultaneous operation of right-hand/left-hand turn indicators shows that your warning lights are activated.

N120455—UN—28APR16

High Beam Indicator

High Beam Indicator—illuminates when the high beam lights are activated.

N120453—UN—28APR16

Right-Hand Turn Indicator

Right-Hand Turn Indicator—right-hand turn signal is active. Simultaneous operation of right-hand/left-hand turn indicators shows that your warning lights are activated.

N121560—UN—12MAY16

Transmission Gear Indicator

Transmission Gear Indicator—first position character indicates transmission state:

- P-Park
- F-Field
- T-Transport

N120479—UN—06DEC16

Cruise Control Indicator

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

N120485—UN—06DEC16

Agitation Level Indicator

Agitation Level Indicator—illuminates when agitation is active and displays the amount that the valve is opened.

N120456—UN—16FEB16

Solution Pump Indicator

Solution Pump Indicator—illuminates when solution pump is active.

N120470—UN—06DEC16

Spray-Master On Indicator

Spray-Master ON Indicator—illuminates when Spray System Master switch is activated on multi-function lever.

N120486—UN—06DEC16

Section Control Indicator

Section Control Indicator—illuminates when Section Control is enabled.

N120480—UN—17FEB16

Dry Spreader Spinners Indicator

Dry Spreader Spinners—illuminates when spinners are active.

N120478—UN—06DEC16

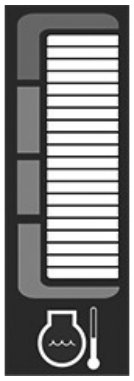
Dry Spreader-Master ON Indicator

Dry Spreader-Master ON Indicator—illuminated when spray system master switch is activated on multi-function lever and dry spreader is installed.

N120476—UN—06DEC16

AutoTrac™ Indicator

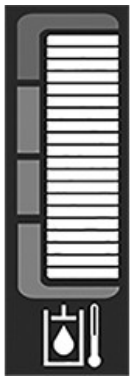
AutoTrac™ Indicator—illuminated anytime AutoTrac™ is actively controlling the steering system.



N120471—UN—05MAY16

Engine Temperature Indicator

Engine Temperature Indicator—indicates the engine temperature. Green area indicates normal operating temperature. Red indicates an overheating condition.

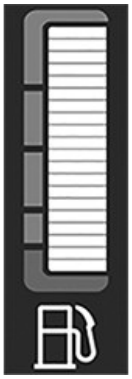


N120472—UN—07DEC16

Hydraulic Oil Temperature Indicator

Hydraulic Oil Temperature Indicator—indicates the hydraulic oil temperature. Green area indicates normal operating temperature. Red indicates an overheating condition.

AutoTrac is a trademark of Deere & Company

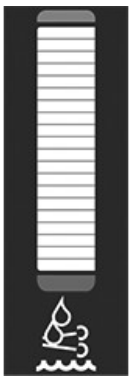


N120473—UN—04MAY16

Fuel Level Indicator

Fuel Level Indicator—indicates the amount of fuel remaining in the fuel tank.

- When the level reaches 10% of remaining fuel, fuel indicator flashes, alarm sounds, and low fuel message appears.



N120474—UN—05MAY16

Diesel Exhaust Fluid Level Indicator

Diesel Exhaust Fluid (DEF) Level Indicator—indicates how much fluid remains in the tank.

- When the level reaches 10%, level indicator flashes, alarm sounds, and low fluid message appears.
- When the level reaches 0%, level indicator illuminates and stops flashing, alarm sounds, and empty fluid message and engine power limited message appears.
- When loss of prime is reached, level indicator illuminates and stops flashing. Alarm sounds and empty fluid message, engine power limited message, and speed limited message appears. Stop engine warning indicator (Red) illuminates, engine is derated and machine functions are restricted.

MM95366,0000445-19-10APR19

Multi-Function Lever

H117033—UN—15APR16

Quick Stop Switch

Quick Stop Switch—allows you to simultaneously shut OFF multiple systems in the case of an emergency.

CAUTION: When pressing the quick stop switch, you are responsible for pulling back on the multi-function lever to stop the machine.

It is always recommended to wear your seat belt to avoid serious injury.

The following systems stop when Quick Stop Switch is pressed:

- Solution pump
- Spray system master
- Spread system master (if equipped)
- Spinners (if equipped)
- Wet system valves

N128650—UN—15FEB17

IBS Reset

Index Boom Sections (IBS) Reset—use to restart all shut-off sections that are enabled.

N128670—UN—15FEB17

IBS Left

IBS Left—use to sequentially shut off individual boom sections starting at the right-hand end of boom moving to left.

N128646—UN—15FEB17

IBS Right

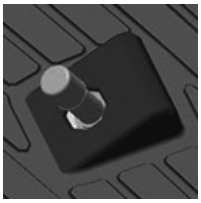
IBS Right—use to sequentially shut off individual boom

sections starting at the left-hand end of boom moving to right.

N128647—UN—15FEB17

HMS™

Headland Management System (HMS™)—allows you to configure how multiple machine systems function by pressing a single switch when leaving a headland.



N120643—UN—27OCT16

Boom Fold Mode

Boom Fold Mode—depressing and holding Boom Fold Mode will change the function of the center boom raise/lower switch and boom tilt switches.

NOTE: Depressing and holding boom fold mode switch will change the function of the center boom raise/lower switch and the boom tilt switches.

N120495—UN—06DEC16

Center Boom Raise/Lower

Center Boom Raise/Lower (Fold/Unfold)—push top of switch to raise the boom center section and bottom of switch to lower the boom center section.

N120496—UN—06DEC16

Foam Marker

Foam Marker—select right-hand or left-hand foam markers.

N128648—UN—15FEB17

Left-Hand Boom Tilt

Left-Hand Boom Tilt (Fold/Unfold)—push top of switch to raise left-hand boom sections and bottom of switch to lower left-hand boom sections.

N128649—UN—15FEB17

Right-Hand Boom Tilt

Right-Hand Boom Tilt (Fold/Unfold)—push top of switch to raise right-hand boom sections and bottom of switch to lower right-hand boom sections.

N120251—UN—04JAN17

Spray System Master

Spray System Master—press to turn enabled boom sections ON and press again to turn OFF. Indicator light illuminates when spray system master is enabled.

NOTE: Spray System Master switch functions as the Spread System Master switch when dry spreader is installed.

N124834—UN—14NOV16

AutoTrac™ Resume

AutoTrac™ Resume—allows you to activate system.

AutoTrac™ resume button also activates RowSense™ system. Refer to the AutoTrac™ Operator's Manual for further information.

System Requirements:

Engine is running.

Road transport disconnect OFF.

Press to engage system.

N124835—UN—06DEC16

BoomTrac™ Resume

BoomTrac™ Resume—allows you to activate system.

N124836—UN—05JAN17

Programmable Buttons

Programmable Buttons—depending on the machine options, the buttons are programmable to different functions. (See Controls Setup Application in Onscreen Help for more information.)

N120894—UN—06DEC16

Speed Range Adjustment Wheel

Speed Range Adjustment Wheel—rotate adjustment wheel to change target speed.

HMS is a trademark of Deere & Company

AutoTrac is a trademark of Deere & Company

RowSense is a trademark of Deere & Company

BoomTrac is a trademark of Deere & Company

CS12167,00009B7-19-15FEB17

Spraying Controls

N120614—UN—10NOV16

Tread Adjust (Out)

Tread Adjust (OUT)—press to widen tread width.

N120613—UN—10NOV16

Tread Adjust (In)

Tread Adjust (IN)—press to narrow tread width.

N120663—UN—12MAY16

Ladder Down

Ladder Down—press switch to lower ladder.

N122770—UN—12MAY16

Ladder Up

Ladder Up—press switch to raise the ladder.

Ladder automatically raises when machine moves forward at speeds greater than 1.6 km/h (1 mph) and automatically lowers when machine is shutoff or when the machine is in park and operator is out of seat.

Ladder lowers automatically after leaving seat for 0.5 seconds.

N142997—UN—20MAR19

Boom Latch

Boom Latch—boom latch button only functions for the air boom machines. Press to release the boom latches that hold the air booms in the cradle.

NOTE: The boom will slightly unfold when the latches release.

N124843—UN—07DEC16

Boom Section Controls Scroll Wheels

Boom Section Controls Scroll Wheels—rotate scroll

wheels rearward to sequentially turn off spray sections or the left/right air boom sections. Rotate scroll wheels forward to turn on sections.

N122771—UN—28APR16

Dial

Dial—is used to adjust settings.

- Turn dial clockwise to increase setting.
- Turn dial counterclockwise to decrease setting.
- Press dial to close the overlay.

N120497—UN—02NOV16

Solution Pump

Solution Pump—press to engage or disengage the solution pump or spinners (if equipped). Indicator light illuminates when solution pump is engaged.

N120490—UN—10NOV16

Agitation

Agitation—press to engage or disengage agitation. Indicator light illuminates when agitation function is engaged.

NOTE: For agitation to occur, first engage the solution pump.

N124439—UN—22SEP16

Manual Rate

Manual Rate—system operates using a fixed pressure or conveyor speed. No automatic rate control is used. Indicator light illuminates when manual rate is enabled.

N124435—UN—18NOV16

Rate Selection

Rate Selection—system operates using selected target rate. Rate is automatically controlled. Indicator lights illuminate when rate selections are enabled.

NOTE: To operate the fence row nozzle, enable outer section on the corresponding side.

N124838—UN—06DEC16

Left-Hand Fence Row Nozzle

Left-Hand Fence Row Nozzle—press to enable or disable the left-hand fence row nozzle (if equipped). Indicator light illuminates when left-hand fence row nozzle is enabled.

N124839—UN—06DEC16

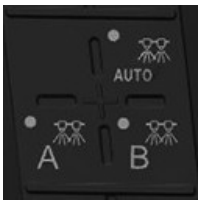
Right-Hand Fence Row Nozzle

Right-Hand Fence Row Nozzle—press to enable or disable the right-hand fence row nozzle (if equipped). Indicator light illuminates when right-hand fence row nozzle is enabled.

N124844—UN—06DEC16

Nozzle Pressure Control

Nozzle Pressure Control—press to alternate between nozzle pressure presets (if equipped with ExactApply™).



N127719—UN—06DEC16

Spray Mode

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Spray Mode—press to enable or disable the desired spray mode (if equipped with ExactApply™). Indicator lights illuminate when a spray mode is selected.

(See Spray Mode in the display Operator's Manual for more information.)

N124437—UN—22SEP16

Video

Video—displays video from camera on-screen.

N127730—UN—16DEC16

Lock

Programmable Shortcut Lock—sets shortcut switches on Multi-Function Lever to avoid accidental change. Indicator light illuminates when programmable shortcut lock is enabled.

N122859—UN—18NOV16

Lock

Programmable Shortcut Lock—sets shortcut switches on CommandARM™ to avoid accidental change. Indicator light illuminates when programmable shortcut lock is enabled.

N124436—UN—18NOV16

Programmable Buttons

Programmable Buttons—depending on the machine options, the buttons are programmable to different functions. Indicator lights illuminate when programmable buttons are enabled. (See Controls Setup Application in Onscreen Help for more information.)

MM95366,0000447-19-30APR19

CommandARM is a trademark of Deere & Company

Engine and Ground Drive

N120669—UN—06DEC16

Low Idle

Low Idle—press to achieve minimum engine speed.

N120671—UN—06DEC16

Engine Speed Increase

Engine Speed Increase—press to increase engine speed.

N120672—UN—06DEC16

Engine Speed Decrease

Engine Speed Decrease—press to decrease engine speed.

Pushing and holding the Engine Speed Increase switch or the Engine Speed Decrease switch increases or decreases engine speed at a predefined rate.

N120670—UN—06DEC16

High Idle

High Idle—press to achieve maximum engine speed.

N120615—UN—10NOV16

Transport Lock Switch

Transport Lock Switch—press when transporting the machine on roadway. Indicator illuminates when selected.

Transport Lock switch prevents the following functions:

Hydraulic boom movements (boom folding/unfolding, center frame raise/lower, tilt raise/lower) Tread adjust system

- Spray system master switch

NOTE: Pump can still run with the transport lock switch engaged.

- Spinner control (when dry box is installed)
- Hydraulic boom movements (boom folding/unfolding, center frame raise/lower, tilt raise/lower)
- Tread adjust system

After transporting the machine on roadway and field operation is desired, press the Transport Lock switch, allowing indicator light to turn OFF and allowing the desired switch functions to operate again.

N120662—UN—06DEC16

Wheel Slip Control

Wheel Slip Control (If Equipped)—press to enable or disable wheel slip control. Indicator light illuminates when wheel slip control is enabled.

N120664—UN—06DEC16

Park Brake

Park Brake—press to engage park brakes. Brakes do not automatically disengage when applied using this switch. Indicator light illuminates when park brake is enabled.

IMPORTANT: Pressing the park brake switch applies the park brakes at vehicle speeds below 0.8 km/h (0.5 mph)

If park brake switch is engaged, it must be manually disengaged before moving machine. Park brakes will not automatically release when park brake switch has been engaged.

NOTE: Park brake switch does not need to be engaged when parking machine. Park brakes are automatically applied when multi-function lever is in park position.

Park brakes will automatically be disengaged when multi-function lever is moved from the park position if the park brake switch has not been engaged.

MM95366,0000449-19-01MAY19

Nozzle Control System

Nozzle Control System Overview

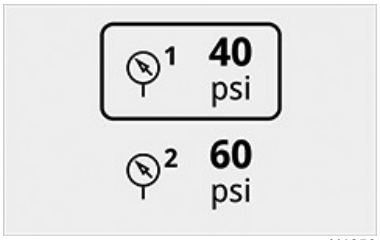
The nozzle control system allows individual nozzle bodies to be turned on and off based on Section Control. The nozzle bodies each contain two valves that can be pulsed or turned on continuously for spraying. There are five active nozzle settings available for the system; A only, B only, A + B, combined 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.



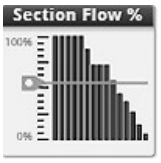
N125615—UN—16DEC16

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

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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

Customize Spray Sections

Spray sections can be customized to include various numbers of nozzles. Sections can contain only one

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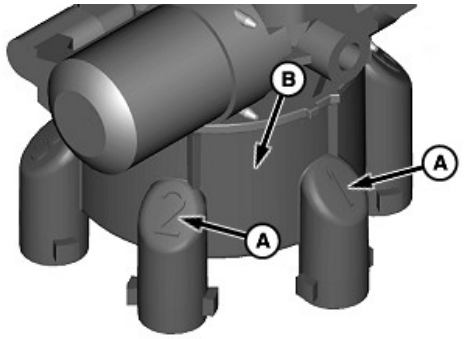
nozzle or several. All machines can be configured with up to 11 or 13 sections regardless of width or factory configuration. See Section Setup in the Boom and Nozzles Application section for setup of the number of sections and number of nozzles per section.

NOTE: The total number of nozzles entered during setup must equal the number of nozzles installed on the machine.

BN55050,0000292-19-14JUN18

Nozzle Body Indicators

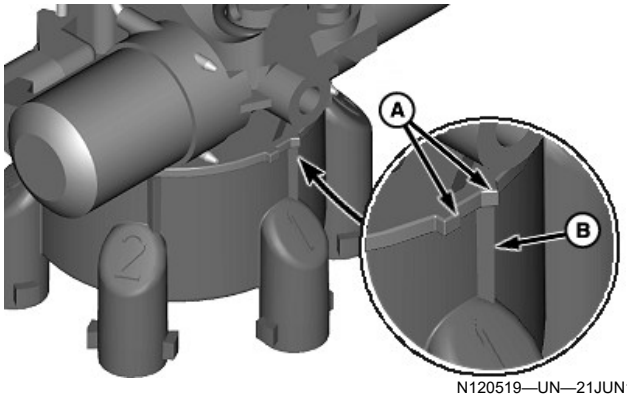


N120518—UN—21JUN16

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.



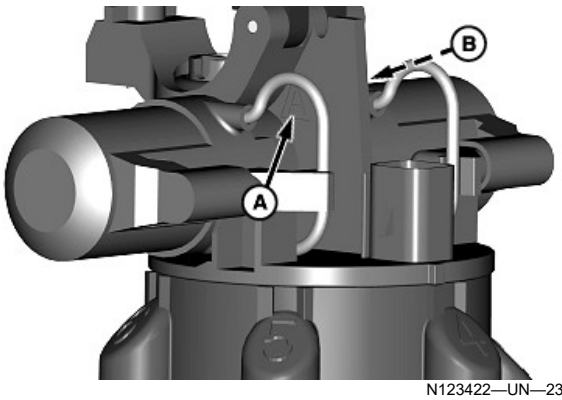
N120519—UN—21JUN16

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

Conversion Factors (Calibrating for Carriers Other Than Water)

For the purpose of choosing nozzle sizes for carriers other than water, a conversion factor must be applied to desired application rate of solutions lighter or heavier than water. To match nozzle tip output to solution, multiply the desired application rate of solution (gallons-per-minute or gallons-per-acre) by the conversion factor listed to arrive at Adjusted Calibration Rate (if using water).

Weight of Solution lb/gal (kg/l)	Example	Specific Gravity	Conversion Factor
7.00 (0.84)		0.84	0.92
8.00 (0.96)		0.96	0.98
8.34 (1.00)	Water	1.00	1.00
9.00 (1.08)		1.08	1.04
10.00 (1.20)		1.20	1.10
10.65 (1.28)	28% Nitrogen Solution	1.28	1.13
11.00 (1.32)	7-27-7 Fertilizer	1.32	1.15
11.06 (1.33)	32% Nitrogen Solution	1.33	1.15
11.40 (1.37)	10-34-0 Fertilizer	1.37	1.17
11.50 (1.38)	12-0-0-26 Fertilizer	1.38	1.17

Weight of Solution lb/gal (kg/l)	Example	Specific Gravity	Conversion Factor
11.60 (1.39)	11-37-0 Fertilizer	1.43	1.20
12.00 (1.44)		1.44	1.20
14.00 (1.68)		1.68	1.30

When spraying 32% Nitrogen Solution at 25 gallons-per-acre (GPA), the nozzle tips should be selected (using water) to deliver 28.75 gallons-per-acre due to the higher density of nitrogen solution.

25 X 1.15 = 28.75 (Desired Application Rate x Conversion Factor = Adjusted Calibration Rate for Water)

NOTE: Target application rate remains at 95 L/min (25 gpa) since sprayer uses a flow-based system.

BN55050,0000060-19-08JUN18

Boom And Nozzles Application

Access Boom and Nozzles

Access Application Through Display:

H113668—UN—22OCT15

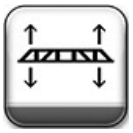
Menu

1. Menu

N119118—UN—23SEP16

Machine Settings

2. Machine Settings tab

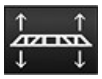


N119097—UN—30NOV16

Boom and Nozzles

3. Boom and Nozzles

Access Application Through Navigation Bar:



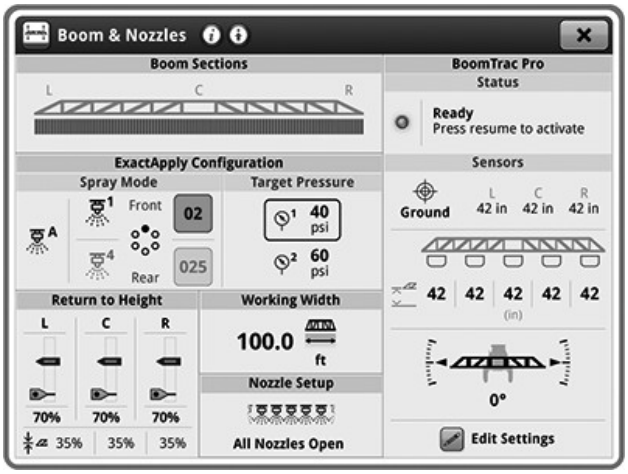
N118464—UN—30NOV16

Boom and Nozzles

Press Boom and Nozzles button on navigation bar below display.

PR79369,000060D-19-26APR21

Boom and Nozzles Main Page



N137624—UN—07JUN18

Boom and Nozzles

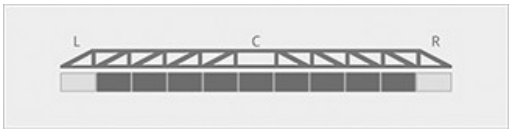
NOTE: Underscored text identifies that additional information is available within this section or another section of this publication.

Main page shown is for example only. Your main page may differ depending on options or connected equipment.

Boom and Nozzles application is used to configure boom sections, nozzles, and boom height control mode. Adjust to maintain proper boom height above the crop or ground and to obtain the desired application rate. Adjust when the crop or terrain conditions change and when the number of nozzles or sections spraying have been altered from previous setting.

NOTE: For information on how to fold and unfold the booms, see Boom Fold/Unfold Procedures.

Items Accessible on Boom and Nozzles Main Page:



N125611—UN—30NOV16

Section Status

Section Status— indicates the status of each boom section.

Boom Items:

N118006—UN—30NOV16

Enable All

Enable All— enable all boom section control valves. Sections are controlled by the Spray System Master switch.

N118386—UN—30NOV16

Disable All

Disable All— disable all boom section control valves. Sections are not controlled by the Spray System Master switch.

N118387—UN—30NOV16

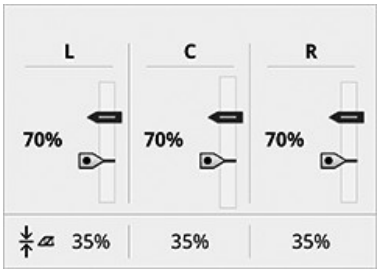
Custom

Custom— enable or disable desired sections. Only enabled sections are controlled by the Spray System Master switch.

N117999—UN—30NOV16

Nozzle Setup

Nozzle Setup— view and change nozzle configuration.



N124848—UN—30NOV16

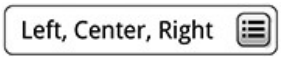
Status

Status— displays the current boom height and the return to height set point as a percentage.

N125629—UN—09JUN20

Set to Current

Set to Current— set boom stop point at the current boom height.



N118014—UN—30NOV16

Height Mode

Height Mode— select the proper Return to Height control mode to achieve the behavior desired.

N119477—UN—09MAR16

Return to Height

Return to Height— use toggle button to turn system ON/OFF.

N118001—UN—30NOV16

Working Width

Working Width— displays the actual width the sprayer applies product.

BoomTrac™ Pro Items:

N118420—UN—02NOV16

Status Indicator

Status Indicator— displays the status of the BoomTrac™ Pro system.

N124850—UN—30NOV16

Sensor Target

Sensor Target— displays the selected sensor target and desired boom height above the target.

N125613—UN—30NOV16

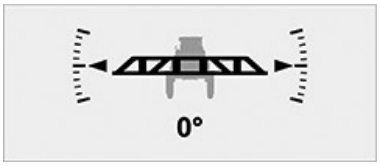
BoomTrac

BoomTrac™ Sensor Status— displays the status of each sensor.

N127723—UN—30NOV16

BoomTrac™ Sensor Height

BoomTrac™ Sensor Height— displays the current height of each sensor above the selected target.



N124853—UN—30NOV16

Boom Roll Sensor

Boom Roll Sensor— indicates boom angle in relation to machine chassis.

N119644—UN—17FEB16

Edit Settings

Edit Settings— to achieve desired performance, modify BoomTrac™ Pro settings.

ExactApply™ Items:

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N125630—UN—16DEC16

Spray Mode

Spray Mode— displays selected mode.

N125632—UN—19DEC16

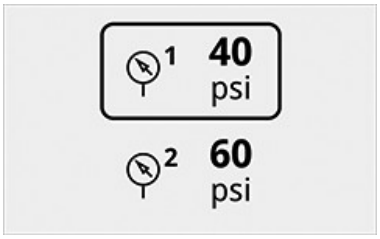
Nozzle Position

Nozzle Position— displays which nozzles are in the front and rear positions. Active nozzle is shown in bold.

N127729—UN—19DEC16

Spray Tip Selection

Spray Tip Selection— displays spray tips installed for the selected nozzle positions. Active spray tip is shown in bold.



N125615—UN—16DEC16

Target Spray Pressure

Target Spray Pressure—displays set target pressures and indicates which pressure currently in use.

N118420—UN—02NOV16

Status Indicator

Status Indicator— displays the status of the nozzle bodies.

N118004—UN—22OCT15

Advanced Settings

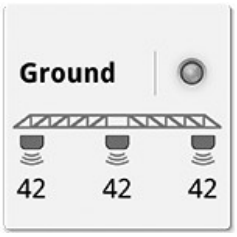
Advanced Settings— access further adjustments and less common settings.

NOTE: For information on how to diagnose ExactApply™ issues, see ExactApply™ | Troubleshooting.

Run Page Modules

Modules for this application can be added to run pages using Layout Manager. (See Layout Manager in the display Operator's Manual.)

Example:



N124852—UN—01DEC16

BoomTrac™ Pro

BoomTrac™ Pro— displays sensor target, system and sensor statuses, and actual boom height. Select to open the BoomTrac™ Pro page.

NOTE: Different modules can be available for your application.

Shortcut Keys

Shortcut keys for this application can be added to the shortcut bar using Layout Manager. (See Layout Manager in the display Operator's Manual.)

N118005—UN—30NOV16

Sections

Sections— quickly opens Boom Sections | Custom page for adjustments.

NOTE: Different shortcut keys can be available for your application.

PR79369,000060E-19-26APR21

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Boom Sections | Custom

Boom Sections | Custom allows you to enable or disable all boom sections. Boom sections can also be individually turned ON/OFF.

Modify When:

- Spraying at a reduced width is required.
- Sections must be turned on one at a time.

Items Accessible on Boom Sections | Custom Page:

N118006—UN—30NOV16

Enable All

Enable All— enable all boom section control valves. Sections are controlled by Spray System Master switch.

N118386—UN—30NOV16

Disable All

Disable All— disable all boom section control valves. Sections are not controlled by Spray System Master switch.

N124854—UN—30NOV16

Section Status Preview

Section Status Preview— indicates the status of each boom section.

N124855—UN—30NOV16

Section Enable/Disable

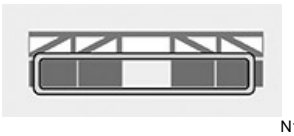
Section Enable/Disable— enable/disable an individual section.

N124856—UN—30NOV16

Customize Sections

Customize Sections— change the number of nozzles in each section or the number of sections on the boom.

Procedure to Modify:



N124857—UN—30NOV16

Section Status Preview

1. Select sections to modify.

NOTE: Up to five sections can be modified at one time; those sections are outlined on the screen. Sections are also selectable using the dial on the navigation bar.

N124855—UN—30NOV16

Section Enable/Disable

2. Enable/disable the desired sections in the current selection by selecting the check box for that section.
3. Repeat for the remaining sections.

N118396—UN—17FEB16

Close

4. Select close button to return to the previous page.

PR79369,000060F-19-26APR21

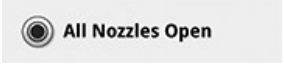
Nozzle Setup

Nozzle Setup allows you to view and change nozzle configuration. To configure nozzles, select Nozzle Setup area from Boom and Nozzles page. Nozzles must be properly configured for the spray rate control unit to apply the desired rate of solution.

Modify When:

- Performing broadcast application.
- Spraying at a reduced width that cannot be achieved with section shutoffs.
- Performing band spraying application.

Active Nozzle Configurations:



N124858—UN—30NOV16

All Nozzles Open

All Nozzles Open— all nozzles on the boom are open and spray when activated.

N124859—UN—30NOV16

Outer Nozzles Closed

Number of Outer Nozzles Closed— number of outer nozzle bodies turned off by manually turning the nozzle body.

ExactApply™ Items:

N118011—UN—07JUN18

Even Nozzles Closed

Even Nozzles Closed— even-numbered nozzles are closed and will not spray. Odd-numbered nozzles spray when activated.

N132481—UN—07JUN18

Odd Nozzles Closed

Odd Nozzles Closed— odd-numbered nozzles are closed and will not spray. Even-numbered nozzles spray when activated.

Procedure to Modify All Nozzles Open:

N124858—UN—30NOV16

All Nozzles Open

1. Select All Nozzles Open.

N118396—UN—17FEB16

Close

2. Select close button to return to previous page.

Procedure to Modify Number of Outer Nozzles Closed:

N124859—UN—30NOV16

Outer Nozzles Closed

1. Select Number of Outer Nozzles Closed.

N118012—UN—30NOV16

Outer Nozzles Closed

2. Select input box.

3. Enter the number of outer nozzles closed using the keypad.

N118151—UN—16FEB16

OK

4. Select OK button to confirm.

N118396—UN—17FEB16

Close

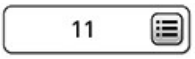
5. Select close button to return to previous page.

PR79369,0000610-19-26APR21

Advanced Settings

Advanced Settings allows you to access further adjustments and less common settings.

Items Accessible on Advanced Settings Page:



N151269—UN—03JUN20

Total Boom Sections

Total Boom Sections— total number of boom sections set up on the machine.

NOTE: This setting is not the number of sections you have enabled. The number of boom sections set up must be entered for the spray rate control unit to calculate boom width and the correct application rate.

N118045—UN—30NOV16

Sections Setup

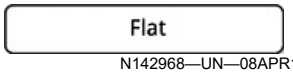
Section Setup— configure each boom section.

BoomTrac™ Pro Items:

N119477—UN—09MAR16

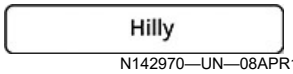
BoomTrac™ Pro

BoomTrac™ Pro— use toggle button to turn BoomTrac™ Pro ON/OFF.



N142968—UN—08APR19

Terrain Type



N142970—UN—08APR19

Terrain Type

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Terrain Type— select input area to choose the appropriate terrain type.

N118033—UN—30NOV16

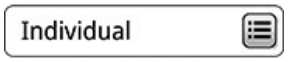
Edit Sensor

Edit Sensor— edit individual sensor information.

N118413—UN—30NOV16

Edit Placement

Edit Placement— edit or enter the sensor distances and offsets.



N151270—UN—03JUN20

Height Mode

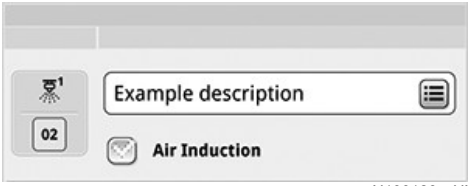
Height Mode— choose height mode for BoomTrac™ Pro operation.

ExactApply™ Items:

N144062—UN—17APR19

Limit Minimum Flow Percentage

Limit Minimum Flow Percentage— enable or disable this feature.



N133126—UN—01MAR18

Installed Spray Tips

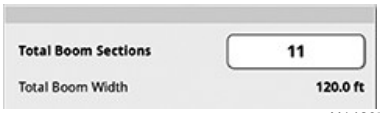
Installed Spray Tips— indicates the spray tip selected for each turret position.

NOTE: Select the description box area to open a list of existing descriptions or to create a new one.

N125618—UN—16DEC16

Fence Row

Fence Row— indicates the selected spray tip installed on the fence row nozzle.



N142973—UN—08APR19

Boom Plumbing

Boom Plumbing— displays total number of boom sections and boom width.

N125620—UN—16DEC16

Boost Setup

Boost Setup— allows for an increased or decreased application rate on a limited number of nozzles.

NOTE: Select the input box to open the rate percentage selection list.

N144061—UN—17APR19

Turn Compensation

Turn Compensation— enable or disable the feature.

N125634—UN—25JAN17

Nozzle Body Lighting

Nozzle Body Lighting— select desired nozzle turret light operation mode.

N125623—UN—16DEC16

Nozzle Turret Lighting Brightness

Nozzle Body Lighting Brightness— select desired brightness for nozzle turret light operation.

NOTE: For information on how to diagnose ExactApply™ issues, see ExactApply™ | Troubleshooting.

PR79369,0000611-19-26APR21

Section Setup

Section Setup allows you to enter the number of nozzles and nozzle spacing for each section. Sections must be properly configured to obtain the desired application rate.

Modify When:

- The number of sections has changed.
- Band spraying.

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- Custom plumbing configurations are installed.

Section Setup Procedure:

N118045—UN—30NOV16

Section Setup

1. Select Section Setup button.

N118046—UN—30NOV16

Section Setup

2. Select section to change.
3. Change Nozzle Count (nozzles spraying on each section) and/or Nozzle Spacing (distance between nozzle bodies) as required.

   Section Width is automatically calculated based on the input number of nozzles and nozzle spacing.

N118093—UN—16FEB16

Save

4. Select Save button to complete section setup.

N118394—UN—17FEB16

Cancel

Cancel button returns you to previous screen and makes no changes to configuration.

N118415—UN—30NOV16

Reset

Selecting Reset button returns the machine to the factory configurations. Any previous changes are lost.

PR79369,0000612-19-26APR21

Limit Minimum Flow Percentage

Limit Minimum Flow Percentage allows you to limit the duty cycle of the nozzle bodies to approximately 25 percent. Maintaining a minimum flow allows the nozzles to develop a full spray pattern in more operating conditions. Turn compensation and nozzle boost adjustments are added or subtracted from the minimum flow percentage.

Modify When:

- Operating at low speeds. Enable the feature.
- Operating at high target pressures. Enable the feature.
- Full spray patterns are required. Enable the feature.
- Desired application rate must be maintained. Disable the feature.

Procedure to Modify:

N118434—UN—22JAN20

Checkbox

1. Select the Limit Minimum Flow Percentage checkbox.

PR79369,0000613-19-26APR21

Installed Spray Tips

Installed Spray Tips indicates the spray tip selected for each turret position. Selected spray tips can also be changed.

Modify When:

- Spray tips are changed.

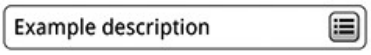
Procedure To Modify:

1. Select spray tip position to edit.

N125635—UN—16DEC16

Spray Tip Position

2. Select Tip installed on the turret.



N133129—UN—01MAR18

Description

3. Select Description for the installed spray tip.

N133130—UN—01MAR18

Air Induction

4. Select Air Induction checkbox if an air induction style spray tip is installed.

N118151—UN—16FEB16

OK

5. Select OK button to confirm.

PR79369,0000614-19-26APR21

Manage Description(s)

Descriptions allow you to enter information describing the selected spray tip. Entering descriptions helps you select the correct tip when multiple types of the same size are used. Descriptions can be edited or deleted when spray tips are changed or removed.

Modify When:

- Spray tips are changed or removed.

Procedure to Modify:

1. Select description.

N119644—UN—17FEB16

Edit

2. Select to Edit

H116104—UN—27JAN17

Delete

3. Select to delete.

N118394—UN—17FEB16

Cancel

4. Select to cancel.

N118151—UN—16FEB16

OK

5. Select OK button to confirm.

PR79369,0000615-19-26APR21

Select Tip

Select Tip allows you to set spray tip size and type installed on the turret for the selected location.

Items Accessible on Select Tip Page:

N125636—UN—16DEC16

Recent

Recent— displays spray tip options that have been selected at least once.

N125637—UN—16DEC16

All

All— displays all loaded spray tip options.

N133131—UN—01MAR18

Spray Tip Description

Spray Tip Description— indicates tip size.

N118394—UN—17FEB16

Cancel

Cancel— return to the previous page without making changes.

N118151—UN—16FEB16

OK

OK— confirm spray tip selection.

PR79369,0000616-19-26APR21

Edit Tip

Edit Tip allows you to edit the description for each entered spray tip.

Modify When:

- Changing spray tips installed on the turret.

Items Accessible on Edit Tip Page:

N125639—UN—16DEC16

Description

Description— information about the spray tip, must be entered by you.

N118394—UN—17FEB16

Cancel

Cancel— return to the previous page without making changes.

N118093—UN—16FEB16

Save

Save— confirm the changes made.

N118004—UN—22OCT15

Advanced Settings

Advanced Settings— access further adjustments and less common settings.

Procedure to Modify:

N125639—UN—16DEC16

Description

1. Select Description.
2. Enter desired description of spray tip.

N118151—UN—16FEB16

OK

3. Select OK button to confirm.

N118093—UN—16FEB16

Save

4. Select Save to confirm and return to the previous page.

PR79369,0000617-19-26APR21

Fence Row

Fence Row indicates the selected spray tip size and type installed. Selected spray tip can also be changed.

Modify When:

- Changing spray tip installed on the fence row nozzle.

Procedure to Modify:

1. Select Fence Row.

N125618—UN—16DEC16

Fence Row

2. Select Tip installed on fence row.

N118151—UN—16FEB16

OK

3. Select OK button to confirm.

PR79369,0000618-19-26APR21

Boost Setup

Boost Setup allows for an increased or decreased application rate from selected nozzles.

Modify When:

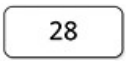
- Increasing the rate in the wheel tracks.
- Increasing the rate for the outer nozzles.
- Desiring an increased rate from a selected nozzle.
- Decreasing the rate near sensitive crops or plants.

Procedure to Modify:

N118434—UN—22JAN20

Checkbox

1. Select single or paired enabled nozzle setting.



N127624—UN—16DEC16

Nozzle Body

2. Select nozzle body input box.

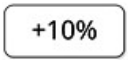
NOTE: The nozzle adjacent to the right of the input nozzle is automatically selected. The adjacent nozzle is displayed in gray when single mode is selected. It is displayed in black when paired mode is selected.

3. Enter the desired nozzle body number.

N118151—UN—16FEB16

OK

4. Select OK button to confirm.



N127625—UN—16DEC16

Flow Percentage

5. Select flow percentage input box.
6. Enter the desired increase or decrease to the application rate.

   Minimum: -25

   Interval: 5

   Maximum: 25

N118151—UN—16FEB16

OK

7. Select OK button to confirm.

N118434—UN—22JAN20

Checkbox

8. Select the enable checkbox to enable boosted application rate.

PR79369,0000619-19-26APR21

Turn Compensation

The Turn Compensation feature allows the application rate to be maintained along the boom width during a turn.

Modify When:

- Performing normal spray operations, enable turn compensation.
- Using a fixed pulse rate, disable turn compensation.

NOTE: If you switch to fixed pulsing or turn pulsing off, the checkbox remains checked but will be greyed out.

Procedure to Modify:

N118434—UN—22JAN20

Checkbox

1. Select Use Turn Compensation checkbox.

NOTE: Turn compensation is only available if automatic nozzle pulsing is selected. The current state of the checkbox is displayed but is not selectable when current settings are incompatible with turn compensation.

When turning in a very tight turn radius, nozzle flow may saturate at the top and/or lower end. Use the nozzle flow graph to adjust operation to optimize performance.

PR79369,000061A-19-26APR21

Nozzle Body Lighting

Nozzle Body Lighting allows you to select the operation mode and brightness of the nozzle lights. The nozzle body lights turn on by way of a Controller Area Network (CAN) message sent by the master controller to the nozzle body using the Controller Area Network (CAN). The nozzle body lights are only able to illuminate if the circuits are functioning properly.

Modify When:

- Troubleshooting nozzle faults.
- Viewing nozzle spray patterns and pulsing.
- A change in brightness is desired.

Nozzle Body Lighting Modes:

OFF— nozzle body lights are not illuminated when spraying.

ON— nozzle body lights illuminate on actively spraying nozzles when spray system master switch is pressed. The ON mode allows you to clearly view the entire width of the boom in low light conditions.

Strobe— nozzle body lights flash at a fixed rate on actively spraying nozzles when spray system master switch is pressed. Strobe mode allows you to better view the spray pattern and pulsing from the nozzle body.

Manual— nozzle body lights are illuminated regardless of boom position or spray system master switch status. Manual mode assists in diagnosing wiring issues and spray tip cleaning in low light situations. When using manual mode to diagnose issues:

- A faulted nozzle or nozzles that is illuminated indicates a Sync Circuit issue.
- A faulted nozzle or nozzles does not illuminate, it indicates an issue with Controller Area Network (CAN) Communication, the Power circuit, or the Ground circuit.

NOTE: For further information on how to diagnose ExactApply™ issues, see ExactApply™ | Troubleshooting.

Procedure to Modify:

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

N125634—UN—25JAN17

Nozzle Body Lighting

1. Select desired Nozzle Body Lighting Mode.

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

N125623—UN—16DEC16

Nozzle Body Lighting Brightness

2. Select desired Nozzle Body Lighting Brightness.

PR79369,000061B-19-26APR21

ExactApply™ Configuration

ExactApply™ Configuration allows you to set target spray pressures, select spray mode, select valve pulsing mode, view the system status, and input the specific gravity of the solution.

Modify When:

- Adjusting target pressure to achieve desired droplet size.
- Specific gravity of the solution changes.
- Changing spray mode.
- Changing valve pulsing mode.

Items Accessible on ExactApply™ Configuration Page:

N118420—UN—02NOV16

Status Indicator

Status Indicator— indicates status of the system.

N125614—UN—16DEC16

Active Spray Tips

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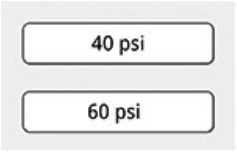
Active Spray Tips— displays the nozzle sizes and turret positions selected for the front and rear positions.

N127627—UN—16DEC16

Target Spray Pressure Enable

Target Spray Pressure Enable— enables the desired target spray pressure.



N127628—UN—16DEC16

Target Spray Pressure

Target Spray Pressure— displays target spray pressures and allow them to be changed.

N127629—UN—16DEC16

Manual Setup

Manual Setup— allow you to set up nozzle turret position, spray mode, and valve pulsing mode.

N127732—UN—25JAN17

Auto Mode Setup

Auto Mode Setup— allows you to configure the automatic spray mode.

N127630—UN—16DEC16

Specific Gravity

Specific Gravity— displays the specific gravity entered for the current solution and allows it to be changed.

NOTE: See Conversion Factors (Calibrating for Carriers Other Than Water) in Nozzle Control Section for examples of common carriers and their specific gravities.

PR79369,000061C-19-26APR21

Target Spray Pressure

Target Spray Pressure is the pressure maintained by

the solution system during application. Target spray pressures are only available when using automatic pulsing mode. Using target spray pressures maintains droplet size when changing speeds or application rates. Target pressure setting does not override the minimum spray pressure entered during machine setup.

Modify When:

- Larger droplets are desired, decrease pressure.
- Smaller droplets are desired, increase pressure.
- Spray tip size is changed.

Procedure to Modify:

1. Select desired target spray pressure input box.

N120242—UN—14NOV16

Target Spray Pressure

2. Enter desired target spray pressure.

   Minimum: 34 kPa (0.34 bar) (5 psi)

   Maximum: 1034 kPa (10.34 bar) (150 psi)

N118151—UN—16FEB16

OK

3. Select OK button to confirm.

PR79369,000061D-19-26APR21

Nozzle Turret | Manual Setup

Manual Setup configures the ExactApply™ system to your needs. Spray mode, valve pulsing mode, nozzle flow, turret position, and installed spray tips are adjustable on this page.

Modify When:

- Installed spray tips are changed.
- Changing spray mode.
- Changing valve pulsing mode.

Items Accessible on Nozzle Turret | Manual Setup Page:

N125635—UN—16DEC16

Spray Tip

Spray Tip— indicates the size of the installed spray tip and position on the turret.

N127631—UN—16DEC16

Rotate Turret Counterclockwise

Rotate Turret Counterclockwise— rotates the rear of the turret position to the right one position.

N127632—UN—16DEC16

Spray Mode

Spray Mode— displays the spray mode selected.

N127633—UN—16DEC16

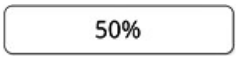
Rotate Turret Clockwise

Rotate Turret Clockwise— rotates the rear of the turret position to the left one position.

N127634—UN—16DEC16

Valve Pulsing Mode

Valve Pulsing Mode— displays valve pulsing mode selected.



N127635—UN—16DEC16

Valve Pulsing Nozzle Flow

Valve Pulsing Nozzle Flow— displays the amount of flow from a nozzle when operating in the fixed value pulsing mode.

PR79369,000061E-19-26APR21

Nozzle Turret | Auto Mode Setup

Auto Mode Setup allows you to configure the automatic spray mode.

Modify When:

- Automatic mode is selected.
- Turret position is changed.
- Target rate is changed.

Items Accessible on Nozzle Turret I Auto Mode Setup Page:

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N118420—UN—02NOV16

Status Indicator

Status Indicator— indicates the status of automatic mode operation.

N118434—UN—22JAN20

Enabled Spray Tip

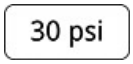
Enabled Spray Tip— allows you to enable or disable a spray tip or combination of spray tips.

N127733—UN—25JAN17

Active Tips

Active Tips— displays the selected spray tip sizes for individual tips and a combination of those tips.

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. Example: Use a 03 tip with a 06.

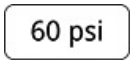


N128456—UN—25JAN17

Minimum Pressure

Minimum Pressure— the lowest pressure for the active spray tip that will maintain the desired rate and pattern.

NOTE: Verify the selected pressure is within the approved range for the selected spray tip size and provides the desired droplet size.



N128457—UN—25JAN17

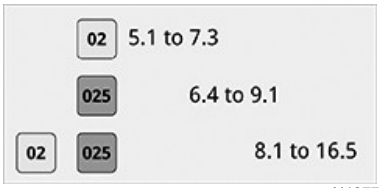
Maximum Pressure

Maximum Pressure— the highest pressure for the active spray tip that will maintain the desired rate and pattern.

N127734—UN—25JAN17

Target Rate

Target Rate— displays the selected target rate.



N127735—UN—25JAN17

Auto Enabled Spray Speeds

Auto Enabled Spray Speeds— displays speed ranges achievable for each active spray tip using the selected pressure settings. Gaps in speed range are also indicated if they occur.

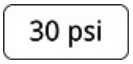
Procedure to Modify:

N127732—UN—25JAN17

Auto Mode Setup

1. Select Auto Mode Setup button.

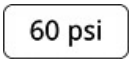
NOTE: The following conditions must be met before auto mode select is available: Valve pulsing set to OFF, Nozzle body turret set in separate flow position (1, 2, or 3 in the front position), spray tips set up both front and rear turret positions, and rate based application selected.



N128456—UN—25JAN17

Minimum Pressure

2. Select minimum pressure for each active spray tip.



N128457—UN—25JAN17

Maximum Pressure

3. Select maximum pressure for each active spray tip.

N118434—UN—22JAN20

Checkbox

4. Enable desired spray tips by selecting or deselecting the corresponding checkbox.
5. Verify correct speed overlap is occurring.

N118396—UN—17FEB16

Close

6. Select the Close button to return to the previous page.

PR79369,000061F-19-26APR21

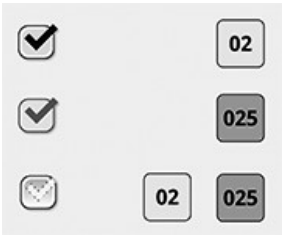
Enabled Spray Tip

Enabled Spray Tip checkboxes allow you to select from three combinations available in the automatic mode. The selection of spray tip combinations can be used to overcome gaps in spray speeds if other methods cannot be used.

Modify When:

- Size between small and large tips is too large.
- Size difference between large tip and combination of tips is too large.

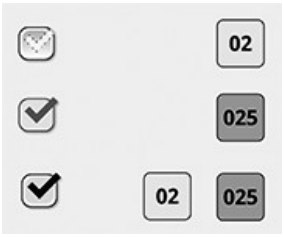
Spray Tip Combinations:



N128458—UN—25JAN17

Small tip to large tip

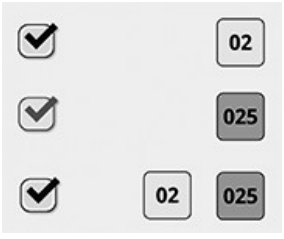
Small tip to large tip— solution is sprayed from either the small tip or the large tip but not both tips together.



N128459—UN—25JAN17

Large tip to combination of tips

Large tip to combination of tips— solution is sprayed from the large tip or both tips combined but not from small tip only.



N128460—UN—25JAN17

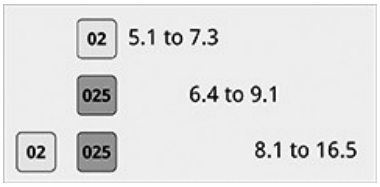
Small tip to large tip to combination of tips

Small tip to large tip to combination of tips— solution is sprayed from the small tip or the large tip or both tips combined.

PR79369,0000620-19-26APR21

Auto Enabled Spray Speeds

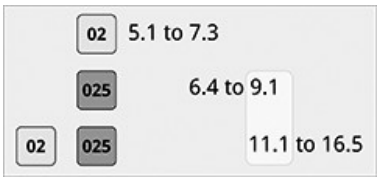
Auto Enabled Spray Speeds displays speed ranges achievable for each active spray tip using the selected pressure settings. An overlap in speeds should occur between the highest speed for a smaller tip and the lowest speed for a larger tip or combination of tips.



N127735—UN—25JAN17

Auto Enabled Spray Speeds

- Correct speed overlap allows the machine to switch between all tips and tip combinations without over or under applying.



N128461—UN—01MAR18

Auto Enabled Spray Speeds

- No speed overlap is indicated by highlighting the speeds that do not overlap. The status indicator also displays the error. Adjust pressure settings, application rate, change spray tip sizes, or disable the spray tip causing the error.

PR79369,0000621-19-26APR21

Status Indicator

Status Indicator displays the status of the automatic spray mode and a message about the status.

Status options are as follows:

N118420—UN—02NOV16

OK (green)

OK— automatic spray mode is correctly setup for operation.

N118020—UN—22OCT15

Pressure Exceeded (amber)

Pressure Exceeded— will exceed minimum to

maximum pressure range. No overlap in spray speeds occurring.

PR79369,0000622-19-26APR21

Spray Mode

Spray Mode allows you to select the desired nozzle and solenoids to use during application.

Modify When:

- Application rates change.
- Application speeds change.

Spray Modes with nozzle 1, 2, or 3 in front:

A Only— the left-hand (A) solenoid is active. Solution is sprayed from the front spray tip only. Use for maximum speed ranges, better turn compensation performance, and 15 or smaller tip sizes.

B Only— the right-hand (B) solenoid is active. Solution is sprayed from the rear spray tip only. Use for maximum speed ranges, better turn compensation performance, and 15 or smaller tip sizes.

A + B— both solenoids are active. Solution is sprayed from both front and rear spray tips. Use with size 15 or smaller spray tips.

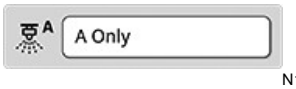
NOTE: Different tip sizes can be installed in A and B locations.

Automatic— nozzle control unit determines which solenoid or solenoid combination to operate. Solenoids are not pulsed in this mode. Solution is sprayed from the front, rear, or both spray tips. Use with size 15 or smaller spray tips.

Spray Modes with nozzle 4, 5, or 6 in front:

Combined A + B— both solenoids are active. Solution is sprayed from the front spray tip. When pulsing is selected the nozzle is pulsed at twice the pulse rate of a single nozzle. This mode provides a higher flow rate for use with size 30 and smaller spray tips. This mode is only available when spray tips 4, 5, or 6 are in the front position.

Procedure to Modify:



N127632—UN—16DEC16

Spray Mode

1. Select Spray Mode.

N127637—UN—16DEC16

Spray Mode

2. Select desired spray mode.

N118093—UN—16FEB16

Save

3. Select Save button to confirm.

PR79369,0000623-19-26APR21

Valve Pulsing Mode

Valve Pulsing Mode allows you to select the desired pulsing mode for the application. Valve pulsing allows a reduced rate to be applied while maintaining system pressure for constant droplet size. Valve pulsing also enables the machine to apply an even rate when turn compensation is active.

Modify When:

- Continuous spray from the tip is desired, select OFF.
- Turn compensation is being used, select automatic.
- Varying application speeds, select automatic.
- Band spraying, select fixed or OFF.

Valve Pulsing Modes:

OFF— selected nozzles are continuously open (no pulsing) when the spray system master switch is pressed ON.

Automatic— the control unit controls nozzle flow by pulsing the solenoid valve to achieve the desired application rate and maintain the desired spray pressure.

Fixed— allows you to enter the desired nozzle flow percentage. No adjustments to the nozzle flow are made automatically.

NOTE: Band spraying is not supported by automatic mode but is available in fixed or OFF modes.

Procedure to Modify:

N127634—UN—16DEC16

Automatic

1. Select Valve Pulsing Mode.

N127639—UN—16DEC16

Automatic

2. Select desired valve pulsing mode.

N118093—UN—16FEB16

Save

3. Select Save button to confirm.

PR79369,0000624-19-26APR21

Valve Pulsing Nozzle Flow

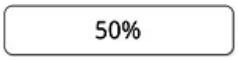
Valve Pulsing Nozzle Flow setting allows you to input the desired percentage of flow desired from the active tip. This amount of flow is constantly maintained during application. Nozzle flow is represented as a percentage of the maximum amount of flow possible through the selected tip size.

Modify When:

- Performing band spraying operations.
- Desiring a large spray tip to function like a smaller spray tip.

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

Procedure to Modify:



N127635—UN—16DEC16

Valve Pulsing Nozzle Flow

1. Select Valve Pulsing Nozzle Flow.
2. Enter the desired nozzle flow percentage.

   Minimum: 1%

   Maximum: 100%

N118093—UN—16FEB16

Save

3. Select Save button to confirm.

PR79369,0000625-19-26APR21

Rotate Turret

Rotate Turret buttons adjust the turret position within the control unit. The control unit must know the position of turret to achieve the desired application rate and provide the correct system options to you.

Modify When:

- Physical turret orientation has been changed.

Procedure to Modify:

N127731—UN—16DEC16

Rotate Turret

1. Select desired rotate turret button to align spray tips on the screen to the actual positions on the boom.

NOTE: Changing turret position on the screen does not change the actual turret position. You must manually adjust each turret to the correct position.

N118093—UN—16FEB16

Save

2. Select Save button to save changes.

N118151—UN—16FEB16

OK

3. Select OK button to confirm.

PR79369,0000626-19-26APR21

ExactApply™ Status

Status Indicator displays the status of the ExactApply™ system and a message about that status.

Items Accessible on ExactApply™ Status Page:

N127641—UN—16DEC16

Section Control Status

Section Control Status— indicates the status of each nozzle body.

N127642—UN—16DEC16

Section Scroll Left

Section Scroll Left— view the nozzle body statuses on the next available section to the left of the current section.

N127643—UN—16DEC16

Section Selection

Section Selection— displays the current section selected or a list of sections to select from.

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N127644—UN—16DEC16

Section Scroll Right

Section Scroll Right— view the nozzle body statuses on the next available section to the right of the current section.

N127645—UN—25JAN17

Indicate Faulted Turrets

Indicate Faulted Turrets— turns on fault flashing of all nozzle bodies with faults for ease of location.

N127646—UN—16DEC16

Nozzle Body Status

Nozzle Body Status— indicates the status of each nozzle body. Select a nozzle body to view additional status information.

Number— indicates which nozzle body you are viewing the status for.

Procedure to Modify:

N127636—UN—16DEC16

Section Scroll Buttons

1. Select section with faulted nozzle bodies using section scroll buttons.

N127646—UN—16DEC16

Nozzle Body Status

2. Select a Nozzle Body Status to view additional status information.

NOTE: For further information on how to diagnose ExactApply™ issues, see ExactApply™ | Troubleshooting.

PR79369,0000627-19-26APR21

Section Control Status

Section control status displays the status of each spray section on the boom.

Status options are as follows:

N119616—UN—14NOV16

Section Ready

Section Ready— section enabled but not applying product.

N119617—UN—14NOV16

Section Applying

Section Applying— section currently applying product.

N122954—UN—14NOV16

Section Fault

Section Fault— section not applying product. Nozzle fault has occurred.

N125628—UN—14NOV16

Section Control Auto OFF

Section Control Auto OFF— section not applying product. Section commanded OFF by section control.

N122953—UN—14NOV16

Section Indexed OFF

Section Indexed OFF— section not applying product. Section commanded OFF by Index Boom Section (IBS) switches.

N122955—UN—14NOV16

Section Disabled

Section Disabled— section disabled using Boom and Nozzles application or CommandARM™ switches.

NOTE: If operating with section control see Section Control Application for setup information. See Section Control in the displays Operator's Manual for more information.)

PR79369,0000628-19-26APR21

Nozzle Body | Status

The Nozzle Body | Status page displays the status of

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the selected nozzle body and provides additional information when a fault is detected.

Items Accessible on Nozzle Body | Status Page:

N118022—UN—13JAN17

Faults Detected

Faults Detected— indicates an electrical fault or a flow error within a nozzle body.

NOTE: For further information on how to diagnose ExactApply™ issues, see ExactApply™ | Troubleshooting.

N118420—UN—02NOV16

OK

OK— indicates that there are no faults or flow errors within the nozzle bodies.

N118025—UN—09MAR16

Checkmark

Checkmark— indicates a normal state for the nozzle body.

N118026—UN—30NOV16

Exclamation Point

Exclamation Point— indicates a fault condition within the nozzle body.

Fault Conditions:

- Subnet 1 sync line runtime fault detected
- Valve plug sensor high current detected
- Valve low current detected
- Valve is stuck open
- Valve solenoid sticking detected

A99030—UN—20MAR18

Diagnostic Readings

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Diagnostic Readings—provides additional information about the selected valve body. Select to view hardware identification numbers, supply voltages, and more.

PR79369,0000629-19-26APR21

Nozzle Body | Readings

The Nozzle Body | Readings page displays hardware, software, and electrical information for the selected nozzle body.

Items Displayed on Nozzle Body | Readings Page:

Source Address—displays the network identifier for each of the electronic control units/functions.

Hardware Part Number—displays the part number of hardware.

Hardware Serial Number—displays the serial number of hardware.

Hardware Manufacture Date—displays the hardware date of manufacture.

Software Part Number—displays the machine software part number.

Software Version—displays the current software version number.

Supplied Voltage—displays the measured supply voltage for each row in units of volts.

Valve A Current—displays the current in units of milliamps for solenoid valve A on the selected row.

Valve B Current—displays the current in units of milliamps for solenoid valve B on the selected row.

Valve A PWM Value—displays the duty cycle value for the solenoid valve A on the selected row in a percentage.

Valve B PWM Value—displays the duty cycle value for the solenoid valve B on the selected row in a percentage.

PR79369,000062A-19-26APR21

ExactApply™ | Troubleshooting

ExactApply™ | Troubleshooting further describes the ExactApply™ system and assists with active issues.

Select for Further Information:

System Overview— provides information on the components and functions that make up the ExactApply™ system.

Error Messages— provides information about error messages you may receive when there is an issue with the ExactApply™ system.

PR79369,000062B-19-26APR21

ExactApply™ | System Overview

ExactApply™ | System Overview provides information on the components and functions that make up the ExactApply™ system.

Select a Component or Function for Additional Information:

ExactApply™— is a system consisting of a master controller communicating with nozzle bodies across four different subnets.

Nozzle Body— is the component that physically applies the product.

Subnets— is a subdivision of the ExactApply™ communication network.

CAN Communication— is an electronic system that allows the subnets to communicate with the master controller.

Sync Circuit— is an electronic system that determines the physical location of the nozzle bodies on the boom through addressing mode. The sync circuit also has a second function called sync mode.

PR79369,000062C-19-26APR21

ExactApply™ | Error Messages

ExactApply™ | Error Messages provides information about some of the alerts you may receive when there is an issue with the ExactApply™ system.

Select an Error Message for Additional Information:

CAN Bus Disabled

Communication Failure

Nozzle Addressing Failure

Nozzle Short, Sticking, Stuck, or Open

Sync Signal Missing

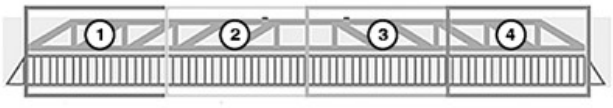
PR79369,000062D-19-26APR21

ExactApply™ | Subnets

The ExactApply™ | Subnets system is comprised of four communication networks known as subnets. A subnet, or subnetwork, is a subdivision of a network. Due to the quantity of Nozzle Bodies on a boom, not all nozzle bodies are on the same network across the boom.

The first nozzle body on a subnet is the nozzle body closest to the center of the machine. Subnets are numbered from the left-hand side of the boom to the right-hand side of the boom:

NOTE: Left-hand and right-hand sides are determined by facing in the direction of forward travel. The number of nozzle bodies on a subnet may vary across the boom.



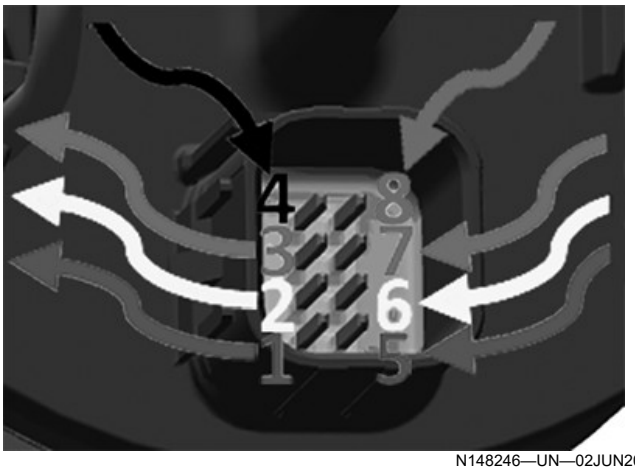
N147668—UN—02JUN20

Subnets

- **Subnet 1**— far left section of the boom highlighted by the green box.
- **Subnet 2**— section of the boom to the left-of-center highlighted by the yellow box.
- **Subnet 3**— section of the boom to the right-of-center highlighted by the orange box.
- **Subnet 4**— far right section of the boom highlighted by the blue box.

PR79369,000062E-19-26APR21

ExactApply™ | Nozzle Body



N148246—UN—02JUN20

Nozzle Body Circuits

The Nozzle Body is the component that physically applies the product. The nozzle body has an internal control unit that is powered by 12 V. This allows communication to the master controller using the Controller Area Network (CAN) protocol for system functionality and proper solenoid timing and control.

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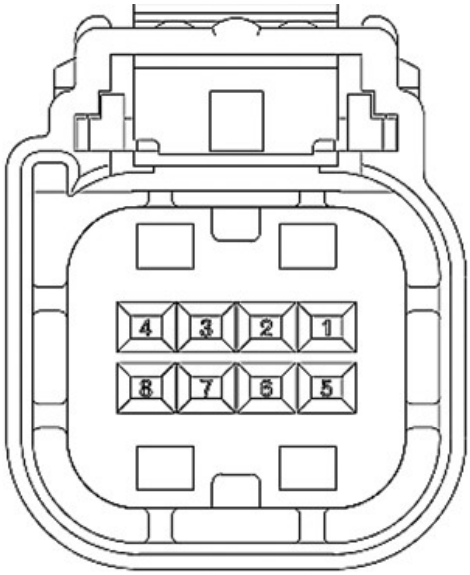
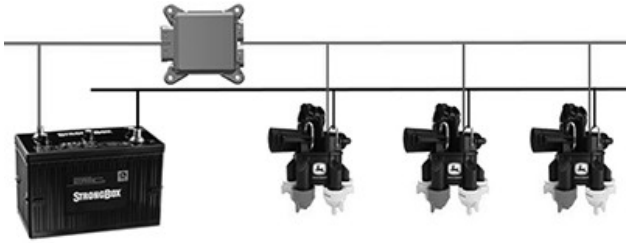


N147669—UN—02JUN20

Nozzle Body Circuits



N148179—UN—02JUN20

Nozzle Body Power Circuit

The nozzle body has eight external circuits that allow the system to function and communicate to the master controller using harnessing and connectors:

PIN	Function
1	Sync Out
2	CAN Hi Out
3	CAN Lo Out
4	Ground
5	Sync In
6	CAN Hi In
7	CAN Lo In
8	Power (12V)

N125634—UN—25JAN17

Nozzle Body Lighting

Each nozzle body is integrated with a light. When set to manual mode, Nozzle Body Lighting can be used to troubleshoot issues. Nozzle body lighting settings can be accessed from the Advanced Settings page of the Boom application.

PR79369,000062F-19-26APR21

ExactApply™ | CAN Communication

N147764—UN—02JUN20

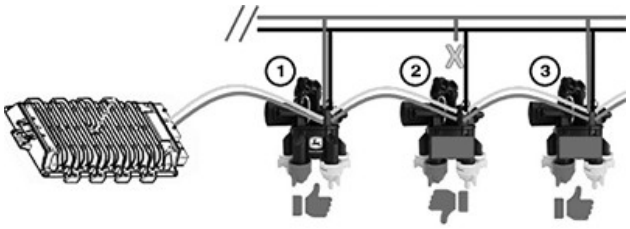
CAN Communication

The Controller Area Network (CAN) Communication circuit is a two-wire passive series circuit that allows the Nozzle Bodies on the Subnets to communicate with the master controller. This means the nozzle bodies are a pass-through circuit for the CAN wiring.

Nozzle Body Pass-Through:

If a nozzle body loses power, CAN information from the other nozzle bodies remain in communication with the master controller.

Example of Nozzle Body Pass-Through:



N147768—UN—02JUN20

Nozzle Body Pass-Through

- Nozzle body number 1 functions properly.
- Nozzle body number 2 loses power. CAN communication still passes through.
- Nozzle body number 3 functions properly because CAN communication continues through faulted nozzle body number 2.

NOTE: Nozzle 3 will have an active error message (Sync Signal Missing) but will still function properly.

NOTE: See Image Icons for explanations of the icons found within certain images.

PR79369,0000630-19-26APR21

ExactApply™ | Sync Circuit

N147765—UN—02JUN20

Sync Circuit

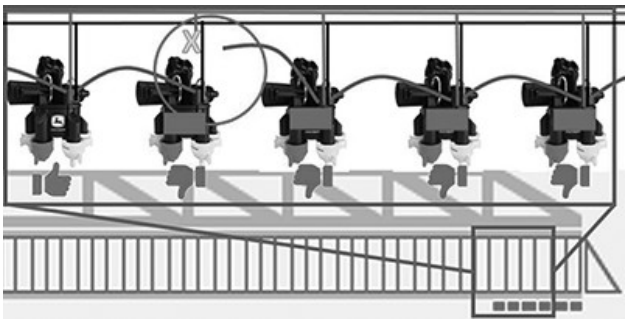
The Sync Circuit is a series circuit that establishes the Nozzle Bodies' physical locations on the boom. Unlike

the Controller Area Network (CAN) circuit, this sync circuit is not a pass-through circuit.

The sync circuit has two functions:

- Addressing Function— allows the nozzle bodies to report their physical position across the boom. This occurs when the ignition key is turned on.
- Heartbeat Function— keeps the nozzle bodies spraying at the proper time across the boom.

Initial Key-On Example:



N148180—UN—02JUN20

Effect of Failed Power Circuit on Sync Circuit

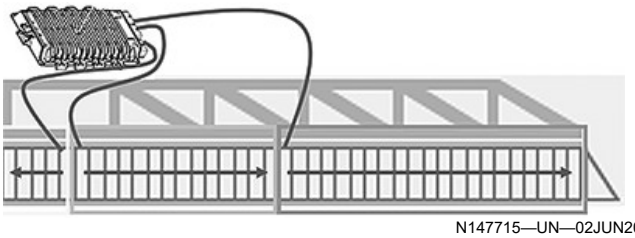
A nozzle body has a power circuit failure. When the machine is powered on, the sync circuit is now broken at that nozzle body. This acts the same as if the Sync Out circuit wire was not plugged into that nozzle body. This will result in the remainder of the nozzle bodies on the subnet to be faulted outboard from the location of the issue.

NOTE: See Image Icons for explanations of the icons found within certain images.

PR79369,0000631-19-26APR21

ExactApply™ | Addressing Mode

Addressing Mode establishes the location of each Nozzle Body when the ignition key is turned on. The system goes into sync mode after addressing is complete. Sync mode keeps the entire boom on the same “time clock” or in sync.



N147715—UN—02JUN20

Adressing Mode

The addressing process happens on each Subnet. The signal sent on this circuit originates from the master controller and passes to the first nozzle body on the subnet which is closest to center of the machine. It then passes from nozzle body to nozzle body outboard to the end of the subnet.

PR79369,0000632-19-26APR21

ExactApply™ | Sync Mode

Sync Mode, also known as the heartbeat function, keeps all of the nozzle bodies on the entire boom synchronized and spraying at the proper time. The system goes into sync mode after Addressing Mode is complete.

This 15 Hz sync signal originates from the controller and is sent to the first nozzle body on each Subnet. It is then passed in-series to each nozzle body outboard on that subnet.

PR79369,0000633-19-26APR21

ExactApply™ | Sync Signal Missing

Sync Signal Missing indicates that the faulted Nozzle Body is not receiving the 15 Hz Heartbeat Signal from the adjacent nozzle body inboard. This may indicate one or more of the following conditions:

N147988—UN—02JUN20

Failed Input

- The nozzle body reporting the error has a failed input internally.

N147986—UN—02JUN20

Failed Output

- The nozzle body directly inboard from the nozzle body reporting the error has a failed output internally.

N147987—UN—02JUN20

Failed Circuit

- There is a failed circuit or circuit component between

the nozzle body reporting the error and the nozzle body directly inboard.

NOTE: See Image Icons for explanations of the icons found within certain images.

When this failure occurs, and no other failures are active, the machine will continue to function and spray. Once the machine is turned off and restarted, the issue may change to a Nozzle Addressing Failure with the additional nozzles on the Subnet reporting as faulted. This requires troubleshooting of the Sync Circuit to regain proper function of the system.

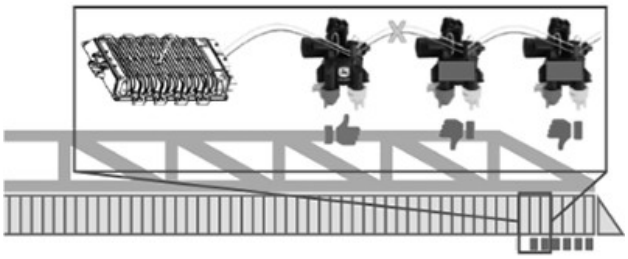
NOTE: For more information on circuit locations, See ExactApply™ | Nozzle Body.

PR79369,0000634-19-26APR21

ExactApply™ | Communication Failure

Communication Failure indicates that one or more Nozzle Body on the Subnet are not communicating to the master controller by means of the Controller Area Network (CAN). The nozzle bodies communicate on the subnet using the CAN Hi and CAN Lo circuits.

This failure can only occur if the machine powers up and is functioning correctly. Then the properly addressed and functioning nozzle body on a subnet loses power, ground, or CAN communication.



N147527—UN—02JUN20

CAN Communication Issue

If the issue is CAN communication, all nozzle bodies outboard from the site of failure on the subnet will also lose communication or show as faulted.

NOTE: See Image Icons for explanations of the icons found within certain images.

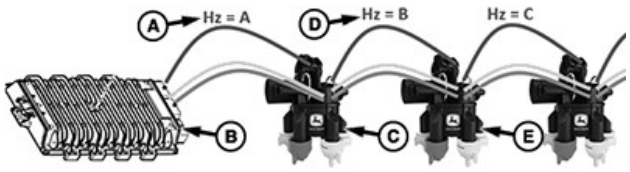
A power or ground issue can result in a single faulted nozzle body or, more commonly, a bank of faulted nozzle bodies. Check for fuse failure. (See Fuse Locations in the Maintenance section of the Operator's Manual.)

NOTE: For more information on circuit locations, see ExactApply™ | Nozzle Body.

PR79369,0000635-19-26APR21

ExactApply™ | Nozzle Addressing Failure

Nozzle Addressing Failure indicates that one or more Nozzle Bodies did not complete the Addressing Process when the ignition key was turned on.



N147993—UN—02JUN20

Nozzle Addressing Sequence

When the ignition key is turned on initially, the system must determine the physical location of each nozzle body on the boom using the following sequence:

1. The addressing process begins by sending a frequency signal (A) from the master controller (B) to the first nozzle body (C) on the Subnet by means of the Sync Line Circuit.
2. The nozzle body then reports its location back to the master controller by means of the Controller Area Network (CAN).
3. Once the first nozzle body establishes its proper location on that respective subnet of the boom, it sends a different frequency (D) to the next nozzle body (E). This allows the second nozzle body on the subnet to establish its location and report back to the master controller using the CAN.
4. This process repeats until all nozzle bodies on the subnet have established their location.

A fault will trigger if too many or too few nozzle bodies report on a subnet. The master controller knows how many nozzles must report back a claimed location on the subnet. If a nozzle body does not have power, ground, CAN, or Sync, it and the remaining nozzle bodies on that subnet cannot establish their location.

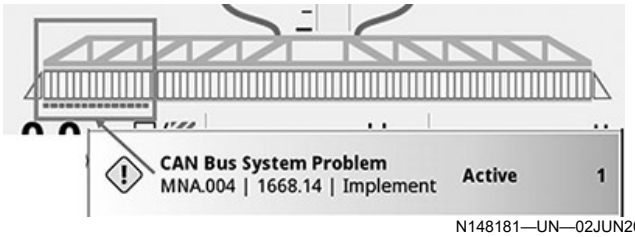
To determine if an issue is related to the sync circuit or the power, ground, or CAN circuits, set the Nozzle Body Lighting mode to manual.

NOTE: For more information on circuit locations, see ExactApply™ | Nozzle Body.

PR79369,0000636-19-26APR21

ExactApply™ | CAN Bus Disabled

CAN Bus Disabled indicates that a Controller Area Network (CAN) bus error was detected by the master controller and has disabled the Subnet.



N148181—UN—02JUN20

CAN Bus Disabled

This fault will show the entire subnet as faulted. The subnet has a failure not allowing CAN communication. The controller identifies this and disables the subnet. This can be caused by one or more of the following:

- Failed terminator
- Internal Nozzle Body failure
- CAN circuit short

NOTE: For more information on circuit locations, see ExactApply™ | Nozzle Body.

PR79369,0000637-19-26APR21

ExactApply™ | Nozzle Short, Sticking, Stuck, or Open

The internal Nozzle Body control unit can identify a fault with the solenoid and cartridge assembly.

Faults caused by an open circuit or short circuit require troubleshooting. Verify that the solenoid resistance is 6—8 Ω.

The limited movement and stuck plunger faults are triggered by the nozzle body control unit not seeing the expected feedback from the plunger movement inside of the cartridge when energized by the solenoid.

To troubleshoot these faults, disassemble the cartridge assembly, clean, and reassemble. If the fault remains after inspection of the components, the cartridge and solenoid can be swapped with a different nozzle cartridge and solenoid. This will determine whether the issue is caused by the internal nozzle body control unit circuit or if the solenoid and cartridge assembly require further troubleshooting or replacement.

NOTE: For more information on circuit locations, see ExactApply™ | Nozzle Body.

PR79369,0000638-19-26APR21

ExactApply™ | Image Icons

Image Icons provide explanations for the icons used within certain images found in the ExactApply™ | Troubleshooting help pages.

N147716—UN—02JUN20

Thumbs Up

Thumbs Up— indicates the nozzle body is functioning.

N147717—UN—02JUN20

Thumbs Down

Thumbs Down— indicates the nozzle body is not functioning.

N147718—UN—02JUN20

Red Rectangle

Red Rectangle— indicates the nozzle body has an active fault code. The nozzle body is reporting an error message.

N147760—UN—02JUN20

X

X— indicates the location of a broken circuit.

N147761—UN—02JUN20

Triangle With Exclamation Point

Triangle With Exclamation Point— indicates the location of a fault.

PR79369,0000639-19-26APR21

Auto Prime Application

Access Auto Prime and Boom Air Purge

Access Application Through Display:

H113668—UN—22OCT15

Menu

1. Menu

N119118—UN—23SEP16

Machine Settings

2. Machine Settings tab

N119493—UN—02NOV16

Auto Prime and Boom Air Purge

3. Auto Prime and Boom Air Purge

Access Application Through Navigation Bar:

N119600—UN—02NOV16

Auto Prime and Boom Air Purge

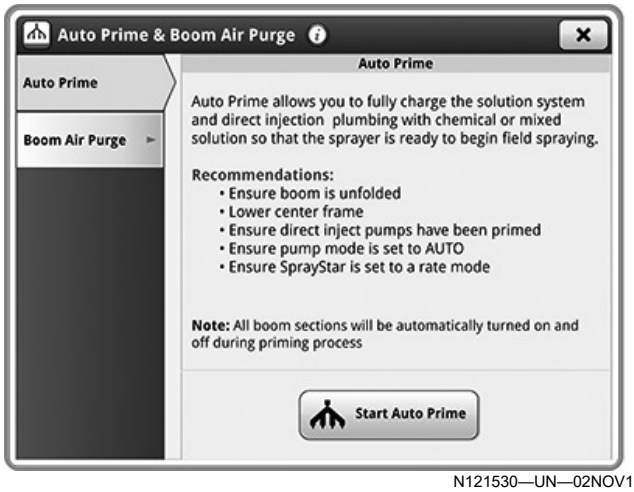
Press Auto Prime and Boom Air Purge button on navigation bar display.

PR79369,000063A-19-26APR21

Auto Prime and Boom Air Purge Overview

NOTE: Underscored text identifies that additional information is available within this section or another section of this publication.

Main page shown is for example only. Your main page may differ depending on options or connected equipment.



N121530—UN—02NOV16

Auto Prime and Boom Air Purge

Auto Prime and Boom Air Purge application is used to access application information, options, and settings. Auto Prime charges the solution system plumbing with solution. Boom Air Purge (if equipped) clears the majority of remaining solution from boom when application has ended.

Tabs Available in Auto Prime and Boom Air Purge Application:

N119495—UN—02NOV16

Auto Prime

Auto Prime— charges solution system plumbing with solution.

N119496—UN—02NOV16

Boom Air Purge

Boom Air Purge (If Equipped)— clears majority of remaining solution from boom when application has ended.

Status Center— provides status and quick access for Auto Prime functions.

PR79369,000063B-19-26APR21

Auto Prime

Auto Prime allows you to charge the solution system with solution so the sprayer is ready to begin spraying. Use Auto Prime to avoid skips when beginning an application.

Use Auto Prime When:

- Beginning spray application after rinsing machine.

- Performing first application of the spray season.

Procedure to Begin Auto Prime:

⚠ CAUTION: All boom sections are automatically turned ON and OFF during the priming process.

N119495—UN—02NOV16

Auto Prime

1. Select to access Auto Prime.
2. Complete the following before beginning the procedure:
   - Unfold boom
   - Center frame in lower position
   - Set SprayStar™ to a rate mode

N119494—UN—02NOV16

Start Auto Prime

3. Select Start Auto Prime to access Setup Wizard.

SprayStar is a trademark of Deere & Company

PR79369,000063C-19-26APR21

Auto Prime | Boom Air Purge

Boom Air Purge allows you to clear the majority of remaining solution from the boom using compressed air from the machine's on board air system. Boom Air Purge must be operated correctly to increase rinse procedure efficiency.

Use Boom Air Purge to:

- Remove solution from boom without performing rinse procedure.
- Maximize rinse system efficiency.

Procedure to Begin Boom Air Purge:

N119496—UN—02NOV16

Boom Air Purge

1. Select Boom Air Purge tab.
   Verify that the following conditions are met:
   - Boom unfolded
   - Spray System Master switch OFF
   - Remote loading not active

N119497—UN—02NOV16

Start Boom Air Purge

2. Select Start Boom Air Purge to begin procedure.

PR79369,000063D-19-26APR21

Boom Air Purge

Boom Air Purge allows you to clear the majority of remaining solution from the boom using compressed air from the machines on board air system. Boom Air Purge must be operated correctly to increase rinse procedure efficiency.

Use Boom Air Purge to:

- Remove solution from the boom without performing rinse procedure.
- Maximize rinse system efficiency.

Details Displayed on Page:

N118420—UN—02NOV16

Status

Status Indicator— displays status of Boom Air Purge.

N118091—UN—16FEB16

Progress Indicator

Progress Indicator— indicates when procedure is in progress.

N119499—UN—02NOV16

Active Boom Section

Active Boom Section— displays which sections are actively purging.

N119596—UN—02NOV16

Boom Pressure

Boom Pressure— current pressure in the boom.

N119597—UN—02NOV16

Time Remaining

Time Remaining— amount of time remaining before procedure is complete.

Boom Air Purge Procedure:

NOTE: Procedure duration is 2 minutes and can be paused or canceled at any time.

N120251—UN—04JAN17

Spray System Master

1. Press Spray System Master switch to turn ON.

NOTE: Boom section purging advances automatically.

Pressing Spray System Master switch to OFF pauses the procedure.

N118151—UN—16FEB16

OK

2. Select OK button when procedure is complete to close application.

N118394—UN—17FEB16

Cancel

3. Select Cancel button at any time to end procedure.

PR79369,000063E-19-26APR21

Pump Prime Selection

Prime Pump Selection allows you to select which Direct Injection pumps to prime, and at which rate to prime them. You can also choose to prime only the injection line or the injection line and boom plumbing. Select the proper settings to avoid skips when beginning application.

Modify When:

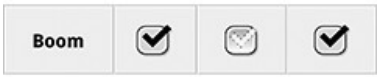
- Changing application rate.
- Changing pumps in use.
- Entire boom does not need to be primed.

Items Accessible on Pump Prime Selection Page:

N119590—UN—02NOV16

Injection Line

Injection Line— select to prime line from the Direct Injection pump to mixer module on boom.



N119591—UN—02NOV16

Boom

Boom— select to prime boom plumbing and injection line for the selected pump.

N119592—UN—02NOV16

Rate

Rate— select desired Direct Injection target rate for application.

Procedure to Modify:

N118434—UN—22JAN20

Checkbox

1. Select checkbox to enable injection line priming for desired pumps.

   OR

N118434—UN—22JAN20

Checkbox

2. Select checkbox to enable line and boom priming for desired pumps.

N119592—UN—02NOV16

Rate

3. Select desired Direct Injection Application Rate for each selected pump.

PR79369,000063F-19-26APR21

Setup Wizard | Auto Prime

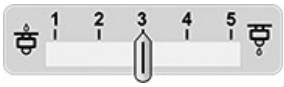
Auto Prime allows you to charge the solution system plumbing with solution so that the sprayer is ready to begin spraying. Use Auto Prime to avoid skips when beginning an application.

Items Accessible on Setup Wizard | Auto Prime Page:

N119498—UN—02NOV16

Simulated Spray Speed

Simulated Spray Speed— anticipated application speed.



N119582—UN—02NOV16

System Prime Volume

System Prime Volume— amount of solution used during procedure.

N119500—UN—02NOV16

SprayStar

SprayStar™ Target Rate— desired application rate. Current rate selected is displayed.

Items Displayed on Page:

N118420—UN—02NOV16

Status Indicator

Status Indicator— displays status of Auto Prime procedure.

N119583—UN—02NOV16

Pump Indicator

Pump Indicator— pumps selected for priming. Grayed out when pump is not selected.

N118091—UN—16FEB16

Progress Indicator

Progress Indicator— displays under pump currently priming.

N119499—UN—02NOV16

Boom Section Indicator

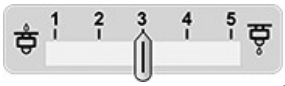
Boom Section Indicator— boom sections being primed are in green. Sections not being primed are empty.

Auto Prime Procedure:

N119498—UN—02NOV16

Simulated Spray Speed

1. Select Simulated Spray Speed. Select plus (+) to increase or minus (-) to decrease desired level.



N119582—UN—02NOV16

System Prime Volume

2. Select System Prime Volume.

N120898—UN—12MAY16

Rate Select

3. Select desired SprayStar™ Target Rate using rate select switches on the CommandARM™ .

N119500—UN—02NOV16

SprayStar™ Target Rate

If desired rate is not available, select SprayStar™ Target Rate to change rate presets.

N119585—UN—02NOV16

Lock

NOTE: Settings cannot be changed once procedure begins. A lock is displayed on each setting when it cannot be changed.

CommandARM is a trademark of Deere & Company

N120497—UN—02NOV16

Solution Pump

4. Press Solution Pump switch on the CommandARM™.

N120251—UN—04JAN17

Spray System Master

5. Press Spray System Master switch on the multi-function lever.

N118025—UN—09MAR16

Checkmark

NOTE: A green checkmark is displayed under each pump when successfully primed.

If an error occurs during procedure, a message is displayed on-screen.

N118151—UN—16FEB16

OK

6. Select OK to close the application when procedure is complete.

PR79369,0000640-19-26APR21

Simulated Spray Speed

Simulated Spray Speed is the speed which you plan to travel when performing the application. Correct spray speed is necessary to charge boom with appropriate concentration of product.

Modify When:

- Anticipated spray speed does not match current simulated spray speed.

Procedure to Modify:

1. Select Simulated Spray Speed input box.

N119589—UN—02NOV16

Simulated Spray Speed

2. Enter desired speed using keypad.

   OR

N119498—UN—02NOV16

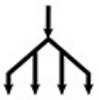
Simulated Spray Speed

3. Select minus (-) to decrease or plus (+) to increase simulated speed.

PR79369,0000641-19-26APR21

Status Center

Status Center provides status and quick access for Auto Prime functions. See Display Overview for more information.



N120227—UN—02NOV16

Auto Prime Active

Auto Prime Active— system is active.

PR79369,0000642-19-26APR21

Status Indicator | Auto Prime

Status Indicator displays the status of Auto Prime procedure and a message about that status.

Status options are as follows:

N118420—UN—02NOV16

Green

Auto Prime System Ready— turn Solution Pump and Spray System Master switches ON to start.

N118020—UN—22OCT15

Amber

Auto Prime System Not Ready— message about error displayed.

N118021—UN—13JAN17

Blue

Injection Line Prime Active— turn Spray System Master switch OFF to stop.

N118021—UN—13JAN17

Blue

Boom Prime Active— turn Spray System Master switch OFF to stop.

N118022—UN—13JAN17

Red

Boom Prime Error— turn Spray System Master switch OFF to stop.

PR79369,0000643-19-26APR21

Status Indicator | Boom Air Purge

Status Indicator displays the status of Boom Air Purge procedure and a message about that status.

Status options are as follows:

N118420—UN—02NOV16

Green

Boom Air Purge Ready— turn Spray System Master switch ON to start.

N118021—UN—13JAN17

Blue

Boom Air Purge in Progress— turn Spray System Master switch OFF to stop.

N118020—UN—22OCT15

Amber

Boom Air Purge in Progress— turn Spray System Master switch ON to resume.

N118022—UN—13JAN17

Red

Boom Air Purge Paused— message about error displayed.

PR79369,0000644-19-26APR21

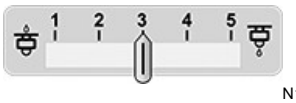
System Prime Volume

System Prime Volume is the amount of solution used during the priming procedure. Use the correct priming volume to ensure that pumps or boom plumbing is fully primed and to prevent skips when beginning application.

Modify When:

- More solution is required to prime pumps and plumbing.
- Less solution is required to prime pumps and plumbing.
- Booms are being operated at reduced widths, reduce volume.

Procedure to Modify:



N119582—UN—02NOV16

System Prime Volume

1. Select System Prime Volume to adjust priming volume.

N125627—UN—02NOV16

System Prime Volume

2. Select minus (-) to decrease or plus (+) to increase prime volume.

NOTE: Setting 3 is the default prime volume setting, and selecting it should prime the system on any size booms.

Select a decreased volume, if desired, when using 27.5 m (90 ft) booms, or operating a larger boom at a reduced width.

N118396—UN—17FEB16

Close

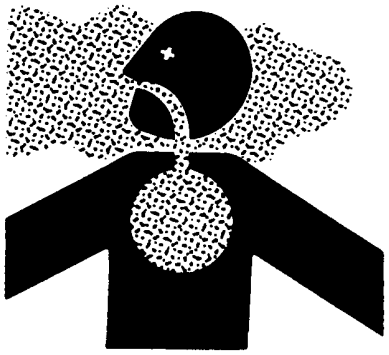
3. Select close button when complete.

PR79369,0000645-19-26APR21

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.

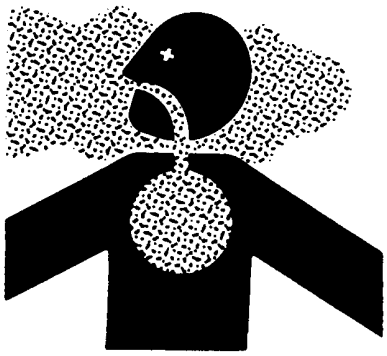
Reduce risk of exposure and injury:

- 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:

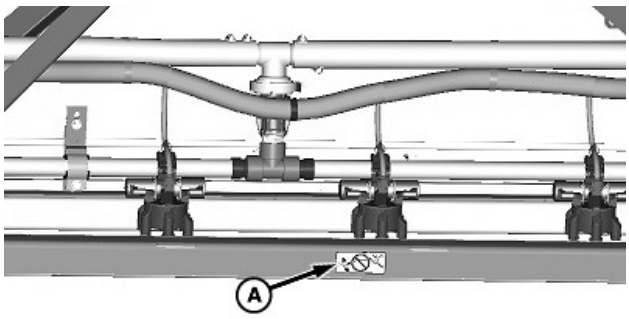
- Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer's label
- Allow only trained, certified applicators to apply chemicals
- Always close the windows and doors during application

- 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.

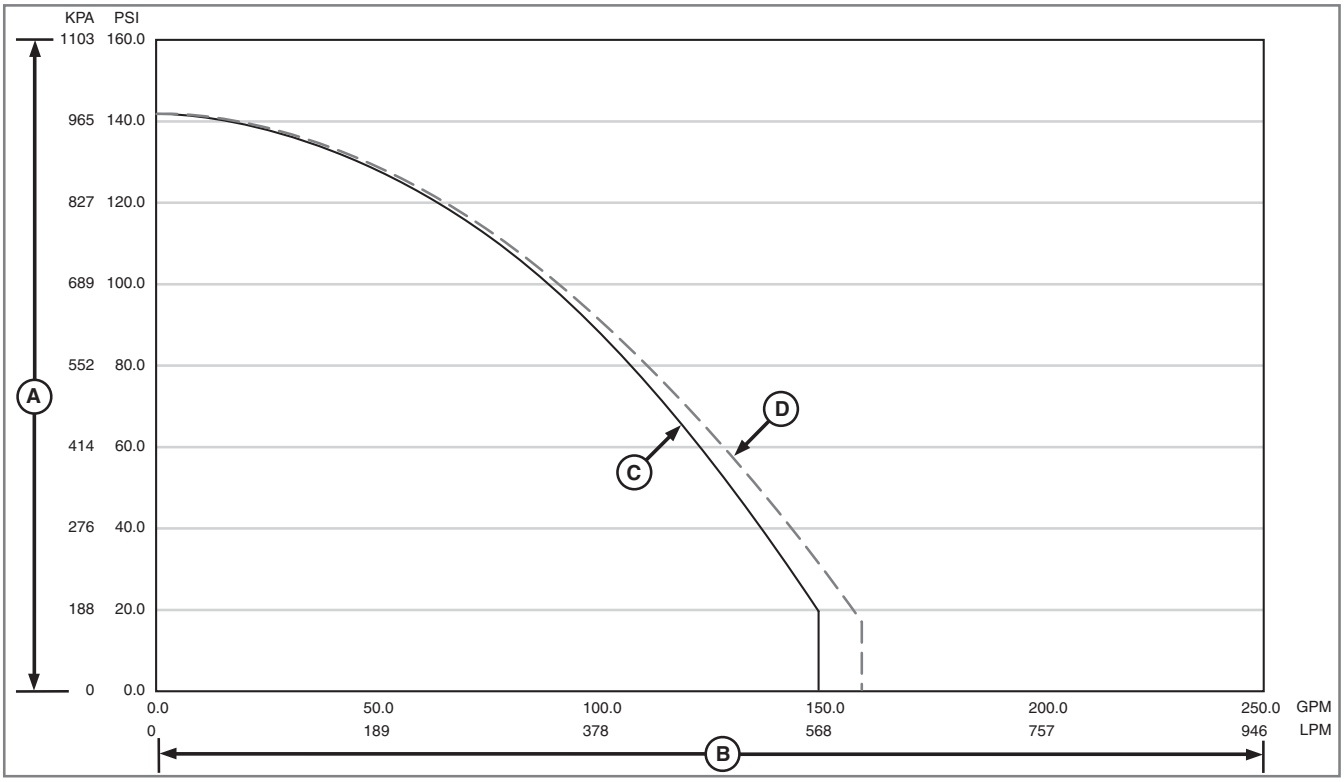
Angled spray pattern tips can be alternated **ONLY** when operating in Combined A + B mode.

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.

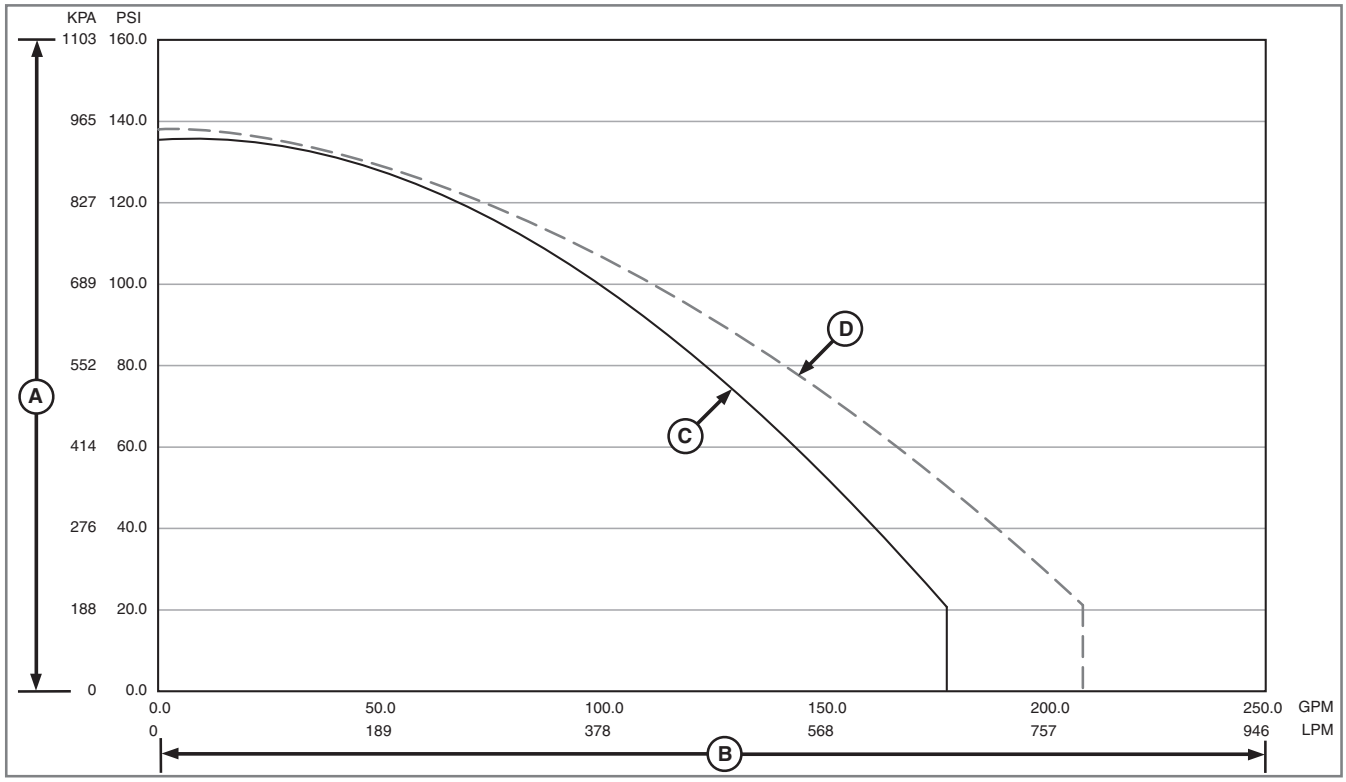
The curves show the maximum output. They are shown with agitation off. Using agitation reduces maximum output.

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.

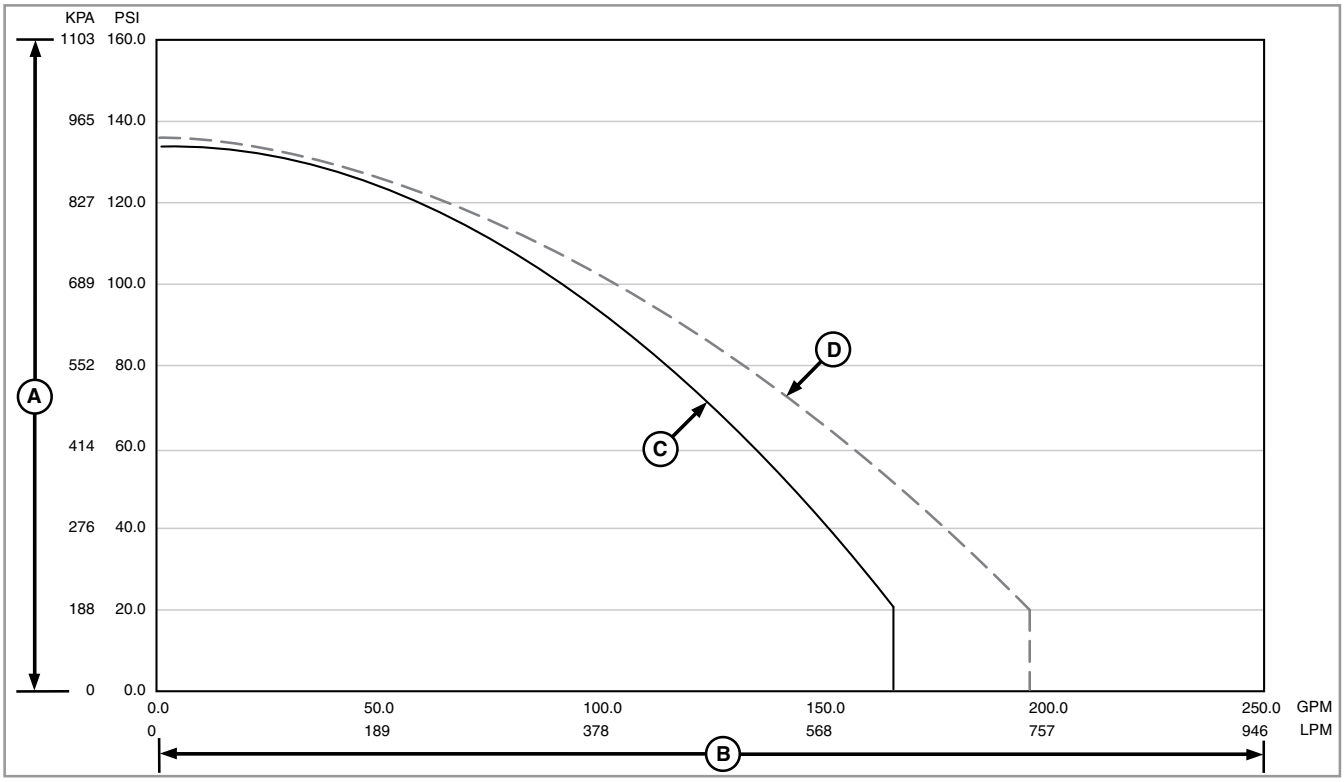
The curves show the maximum output. They are shown with agitation off. Using agitation reduces maximum output.

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.

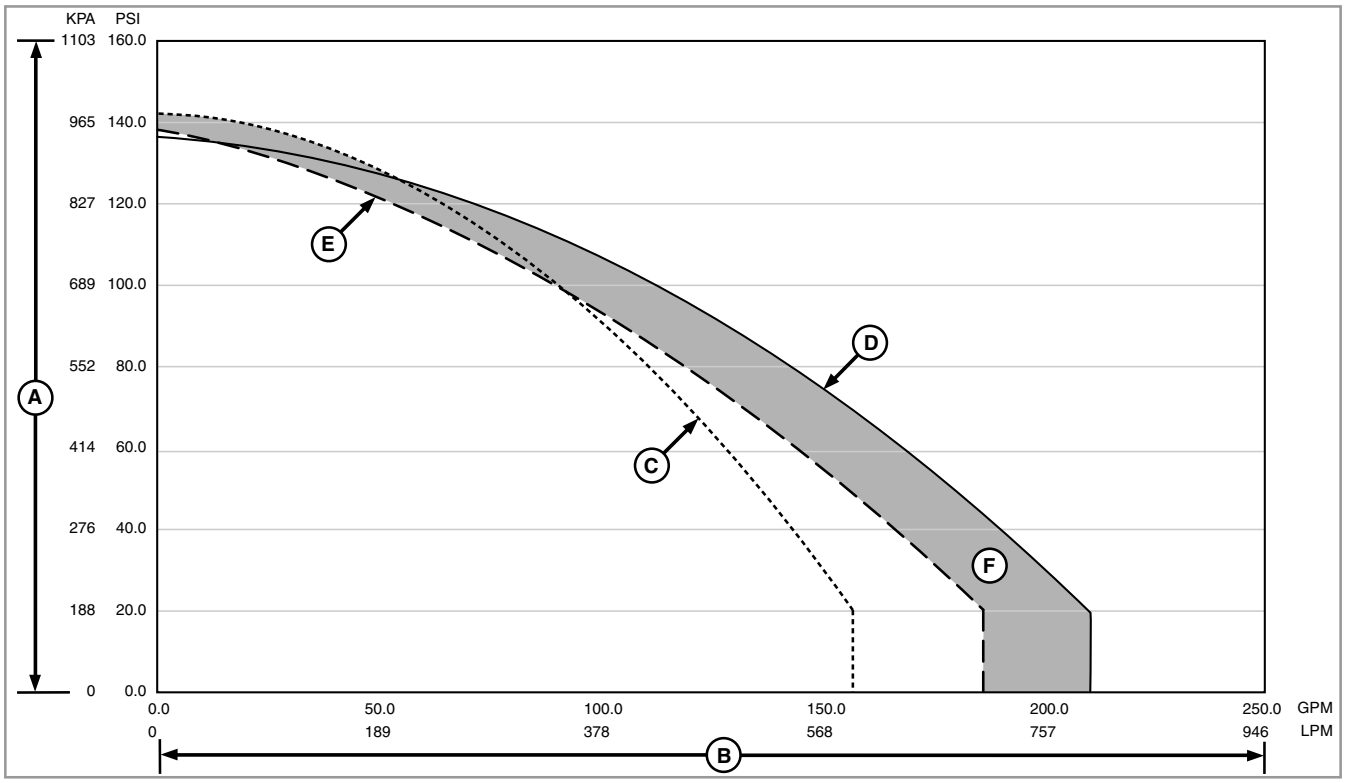
The curves show the maximum output using 28% liquid nitrogen. They are shown with agitation off. Using agitation reduces maximum output.

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

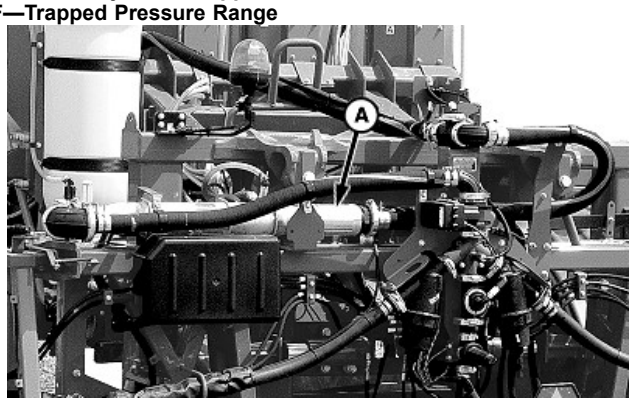


N129728—UN—04MAY17

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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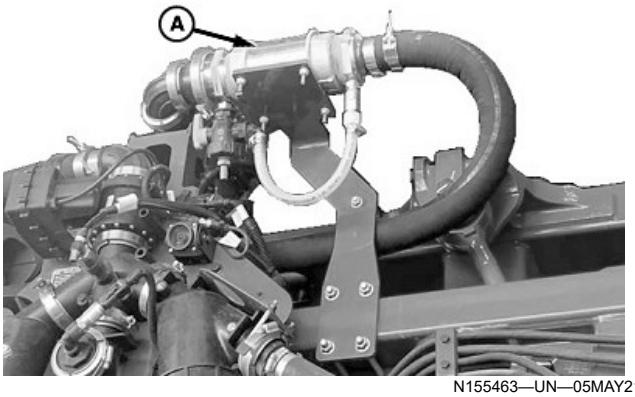


N155463—UN—05MAY21

Machines Equipped with High-Pressure Relief

A—Check Valve

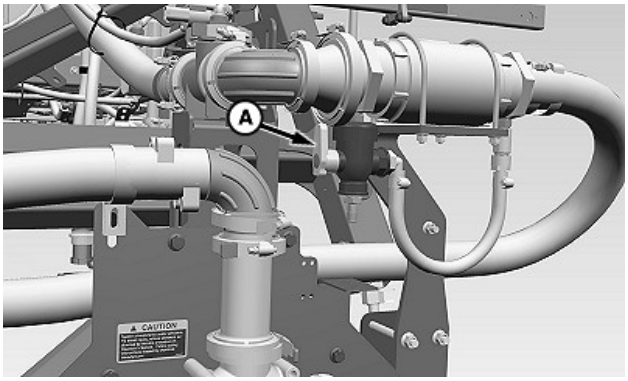
When a flow rate or pressure in the indicated range is required and pressures are being trapped, the check valve (A) must be removed or bypassed when direct injection is not being used.

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

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 the nozzle lights. (See Nozzle Body Lighting in the Boom and Nozzles Application section.)

N154924—UN—11MAR21

A—Spray System Master Switch

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

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

Nozzle lights are also used to indicate nozzle bodies with faults present. Fault indication occurs when the spray system master 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 until 2 minutes have 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.

BN55050,0000575-19-17MAY21

Before Field Operation

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

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

- All maintenance has been performed.
- Correct nozzle tips are installed and set for the desired spray pattern and row spacing. (See the Wet System section of the machine Operator's Manual for proper nozzle tip and row spacing selection.)
- Nozzle control is correctly programmed with the following: (See the Boom and Nozzles Application section to program information properly.)
  - Active Nozzle Selection
  - Nozzle Pulsing
  - Target Pressure
  - Nozzle Lights
  - Turret Orientation
  - Spray Tip Size and Location
  - Rate Meters

CommandARM is a trademark of Deere & Company

- Boost

- Perform a Boom Air Bleed procedure. (See Recommendations for Eliminating Air from Solution System in the Wet System section of the machine Operator's Manual.)
- Operator is familiar with all machine controls, their functions, and safe operations. (See the Chassis and Safety sections of the machine Operator's Manual.)

BN55050,0000576-19-19APR21

Field Operation

CAUTION: Do not turn on the machine until you are sure that there are no bystanders 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.

N155116—UN—21APR21

A—Raise/Lower Switch

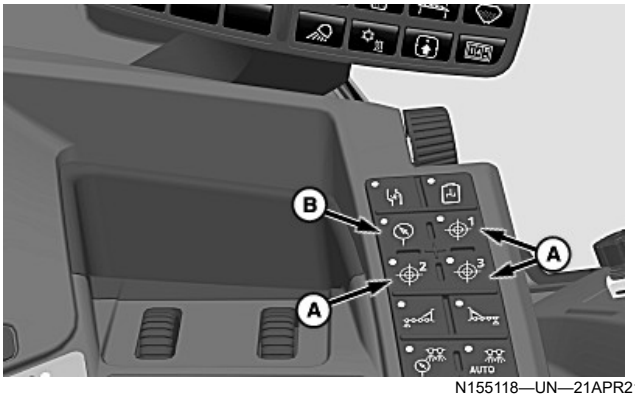
1. Unfold the boom and press raise/lower switch (A) to position the boom at desired operating height.
2. Set up the display for your particular application. (See Display Applications section in the machine operators manual for proper setup procedures.)
3. Verify that the tank is loaded with solution.

NOTE: The solution pump will automatically shut off after a brief time if no solution flow is detected to prevent overheating and damage to seals.

N155117—UN—21APR21

A—Solution Pump Switch

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



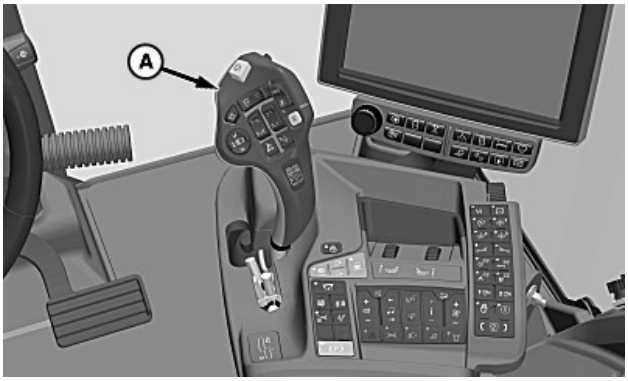
N155118—UN—21APR21

A—Rate Control Switch
B—Manual Rate Switch

6. Select rate control switch (A) programmed for desired application rate (1, 2 or 3) or manual rate switch (B).

NOTE: Rate selected is highlighted on the display.

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



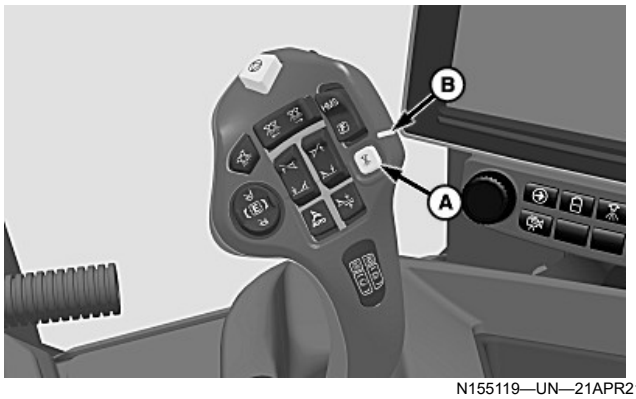
N155095—UN—30MAR21

A—Multi-Function Lever

7. Push multi-function lever (A) slowly forward to start forward motion.

8. Verify that the desired boom sections are enabled. (See Boom Sections Custom in the Boom and Nozzles Application section.)

NOTE: The status of each boom section is indicated on the display. (See Section Control Status in the Boom and Nozzle Application section.)



N155119—UN—21APR21

N155120—UN—21APR21

A—Spray System Master Switch
B—Indicator
C—Indicator

9. Press spray system master switch (A) to start spraying operation.

NOTE: Indicators (B and C) are illuminated when the spray system master switch is activated on the multi-function lever.

N155121—UN—21APR21

A—Spray System Master Switch

10. At the row end, press spray system master switch (A) to stop spraying. All other switches can remain in preset positions.
11. When aligned with the next row, press the spray system master switch to resume spraying.

BN55050,0000577-19-19APR21

Operate Indexed Boom Sections (IBS)

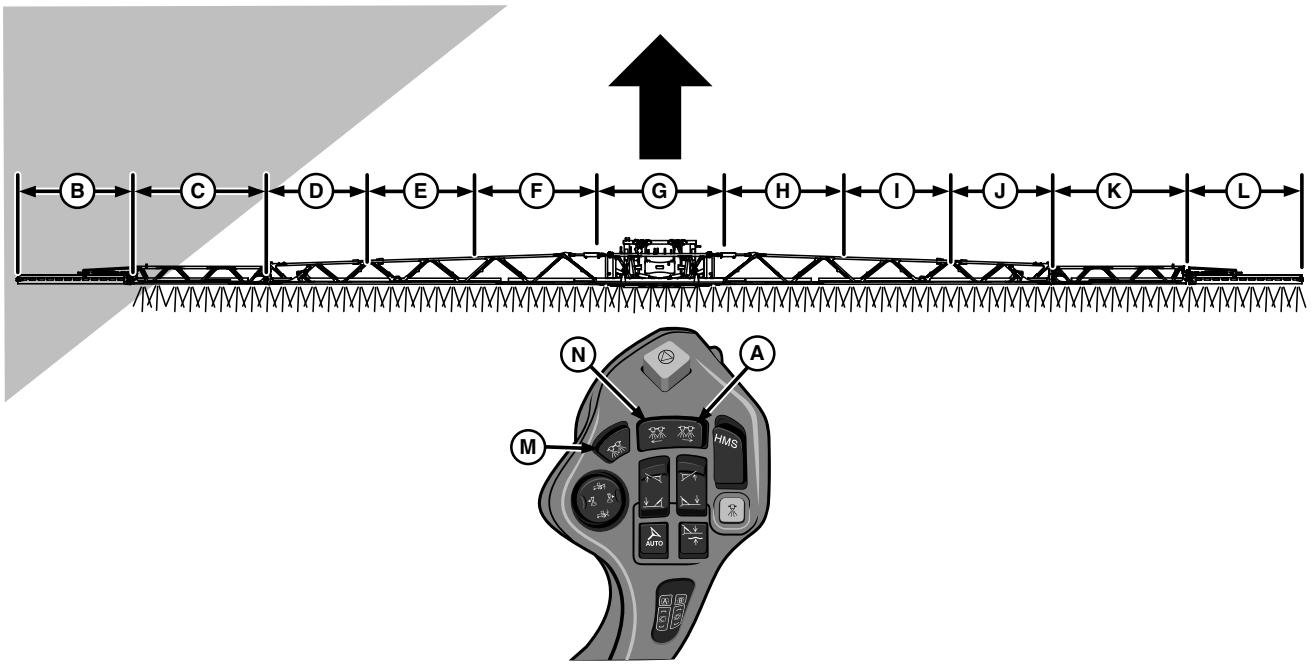
This machine is equipped with Indexed Boom Section (IBS) switching. This gives the operator another way to shut off boom spray sections in sequence without removing a hand from the multi-function lever. An audible beep sounds when the buttons are pressed. This function is useful when working with point rows and waterways.

There are three IBS buttons that operate as follows:

N155127—UN—21APR21

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

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



N127750—UN—06DEC16

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 Reset Button
N—IBS Left Button

EXAMPLE: If the operator comes upon an angled waterway and would like to shut off boom sections in sequence from left to right, IBS right button (A) can be pressed and released once to shut off the left-hand outer boom section (B). Sections disabled by the IBS feature have a white background with the outline box. Press and release IBS right button (A) again to shut off section (C). Continue to press and release IBS right button (A) to shut off the remaining sections across the entire boom.

Once all boom sections have been shut off, press and release IBS right button (A) again to turn **ON** section (B), then (C) and so on.

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

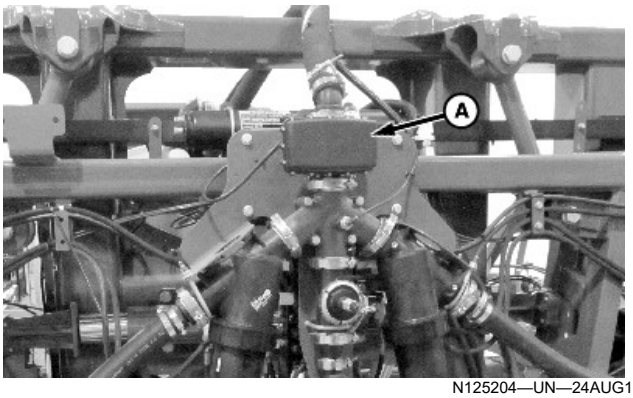
Sections can be shut off from the right side to the left side using IBS left button (N).

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

If a boom section is disabled using the display, it is ignored when turning boom sections on-off using IBS function.

BN55050,0000578-19-20APR21

Operate Boom Isolation Valve



N125204—UN—24AUG16

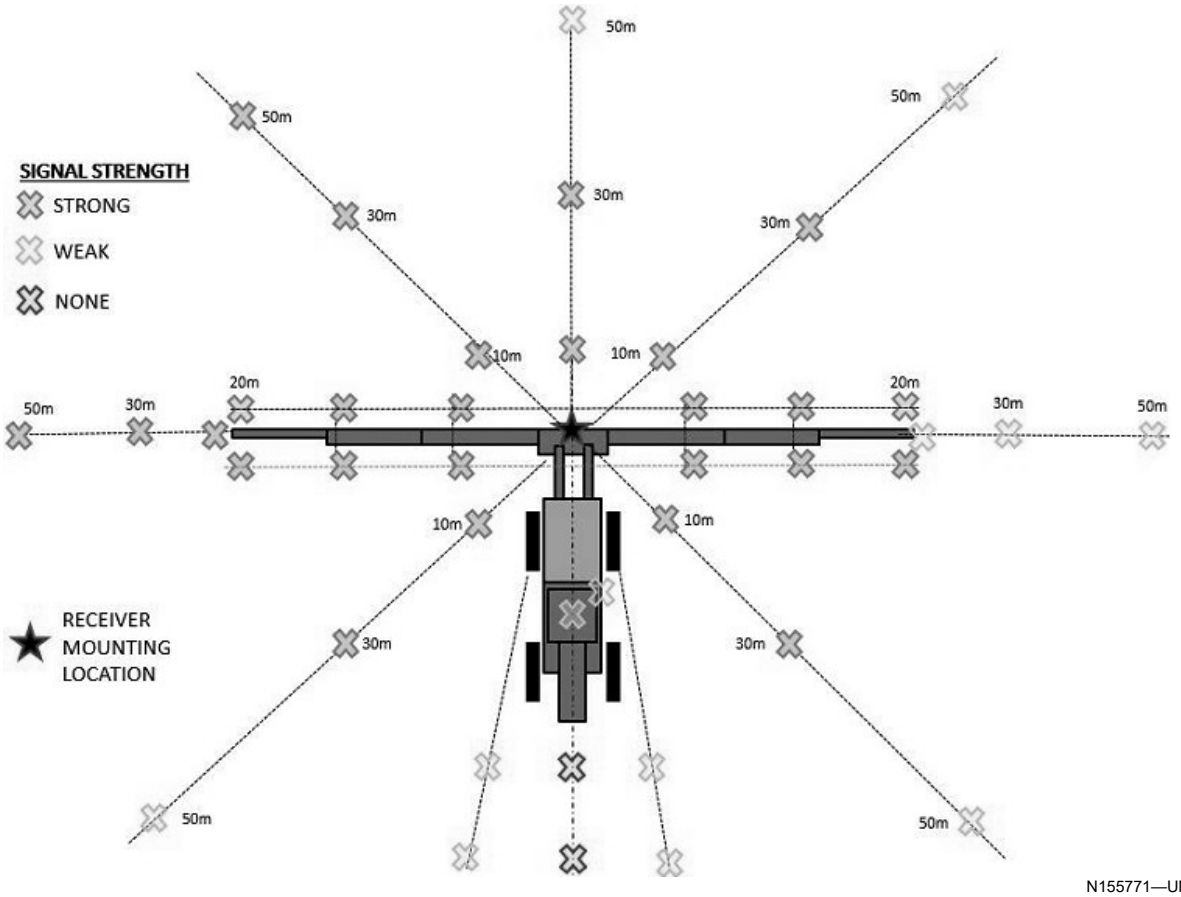
A—Boom Isolation Valve

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

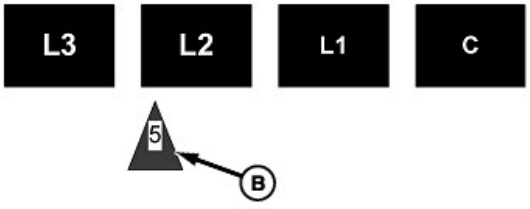
NOTE: Only enabled nozzles are controlled when using the remote control.

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.

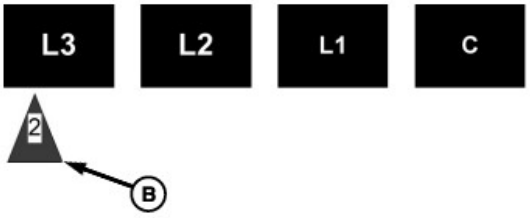
Example 2: Activate Single Nozzles then a Section

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

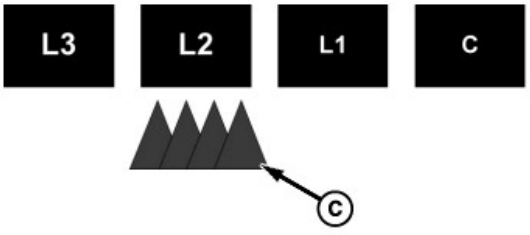
Machine horn honks twice and all nozzle lights flash twice when the system is enabled.

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

Pressure Relief

The Boom Pressure Relief function allows the pressure trapped in the boom to be bled off after spraying is complete. The main purpose of this function is to minimize the possibility of the sprayer nozzle bodies leaking while in transit.

CAUTION: Avoid unintended spray from nozzles. Do not use when non-John Deere aftermarket solution-system equipment is installed. These include, but are not limited to, direct injection and section control systems. See the direct injection system Operator's Manual or details regarding the use of this feature with a direct injection system.

Procedure to Operate Boom Pressure Relief:

N118160—UN—09FEB17

Pressure Relief

1. Enable boom Pressure Relief.

N120497—UN—02NOV16

Solution Pump

2. Press Solution Pump switch to turn OFF solution pump.

N118484—UN—09NOV16

Boom Raise/Lower

Press Boom Raise/Lower switch on the multi-function lever to raise boom center frame to highest position.

4. Verify that solution system pressure is 27 kPa (0.27 bar) (4 psi).
5. Enable all boom sections. See Boom and Nozzles Application.

N120251—UN—04JAN17

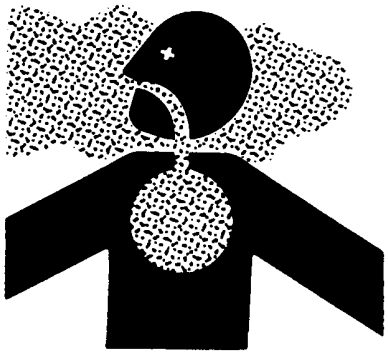
Spray System Master

6. Press Spray System Master switch. Section valves open for 3 seconds to relieve pressure. Section valves automatically close after 5 to 6 seconds.

PR79369,00002DE-19-27JAN21

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.

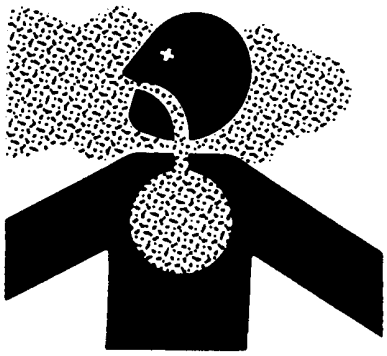
Reduce risk of exposure and injury:

- 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

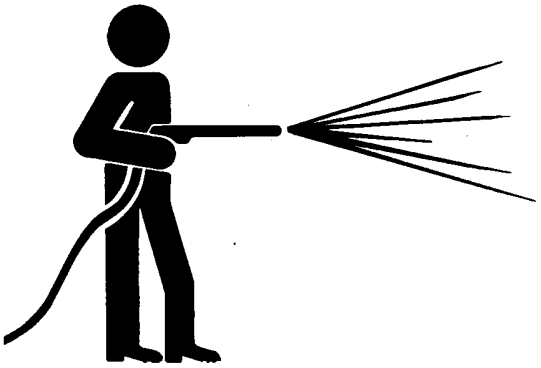
Service Spray System Safely

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.

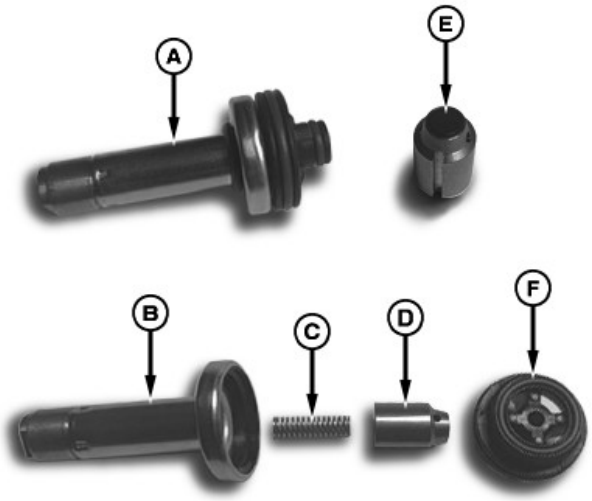
ExactApply™ nozzle bodies require additional care and maintenance to ensure proper function of the system. The nozzle bodies require both A and B solenoids to be rinsed, even if one channel has not been used during spray operation. Nozzle bodies must be rinsed daily when a chemical has been used. Do 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

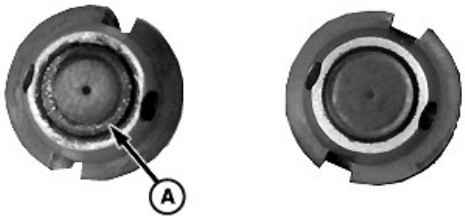
AOTA2VY,0000418-19-16MAR21

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:

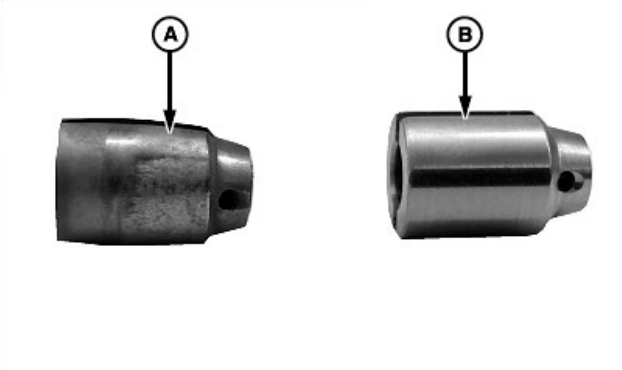
- Operating mode
  - Pulsing mode increases wear
  - Sprayer mode: Operating time with A vs B
- Higher operating pressure
- Water with sand or other particles
- Corrosion
  - Low PH defoliants and fertilizers
  - Failing to use glycol-based fluids
- Chemicals mixed with powders or granules
- Inadequate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

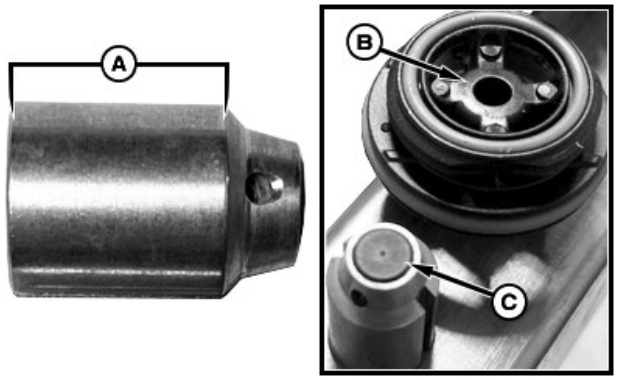
The plungers also become worn on the sides (A) as compared to a new plunger (B). When heavy side wear occurs, the plunger must be replaced. If the valve seat and plunger are both heavily worn, the entire cartridge assembly must be replaced. See Repair Nozzle Solenoid in this section for list of parts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

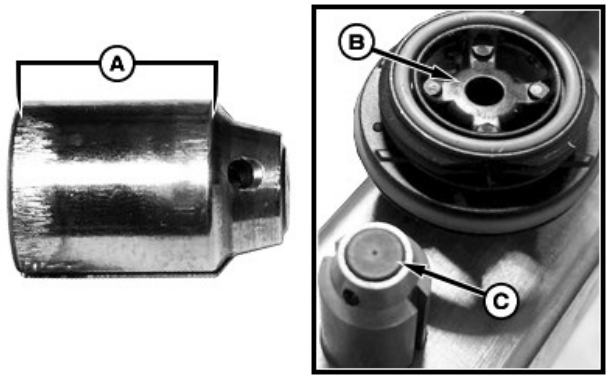


N154610—UN—09MAR21

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

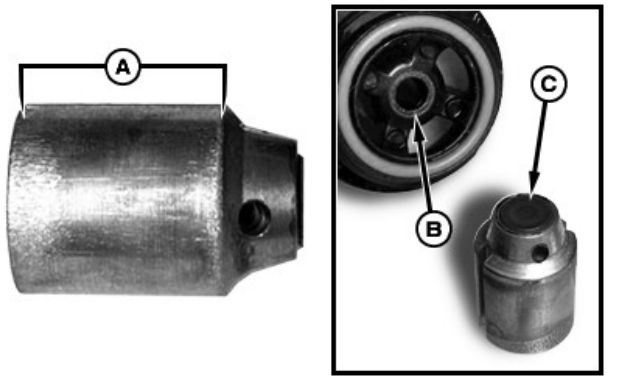
A—Outer Plunger Surface
B—Valve Seat
C—Poppet

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

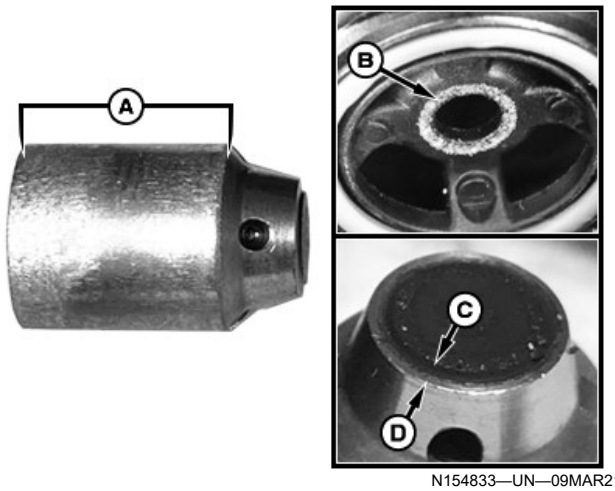
Cartridge components are **moderately worn** if:

- 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:

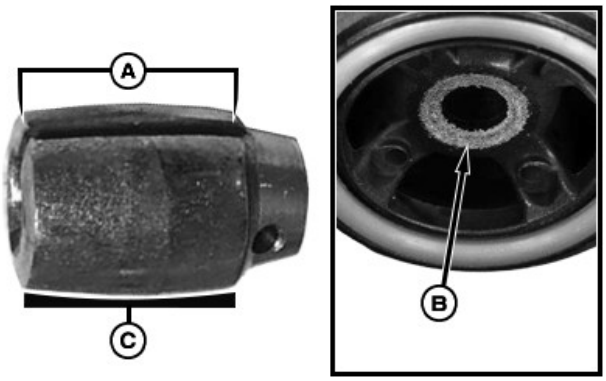
- 50% or more of the outer plunger surface (A) is scratched or scarred.
- The valve seat (B) is rough or shows signs of damage.

- 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

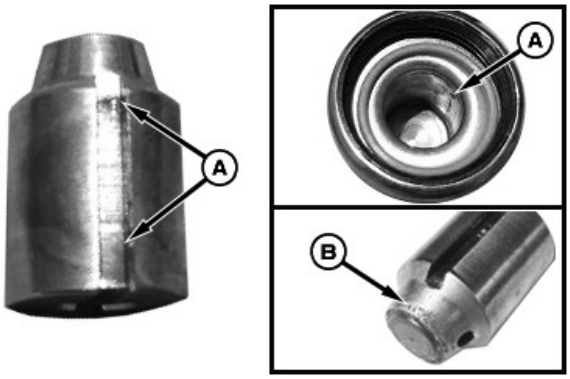
If there is a leak, or if a plunger does not open at high pressures, the components could be excessively worn.

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.

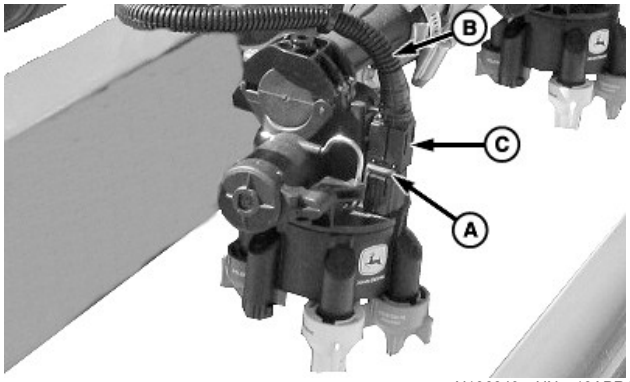
High pressure is trapped in the boom on machines equipped with Direct Injection. Perform pressure relief procedure before servicing the nozzle body.

NOTE: If solution is in the booms, perform a product reclaim (if equipped) back to the solution tank to avoid the need to drain the solution into a container.

1. Perform a boom rinse procedure. (See the Rinse System Application section of the machine Operator's Manual.)
2. Perform pressure relief procedure. (See Pressure Relief 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.



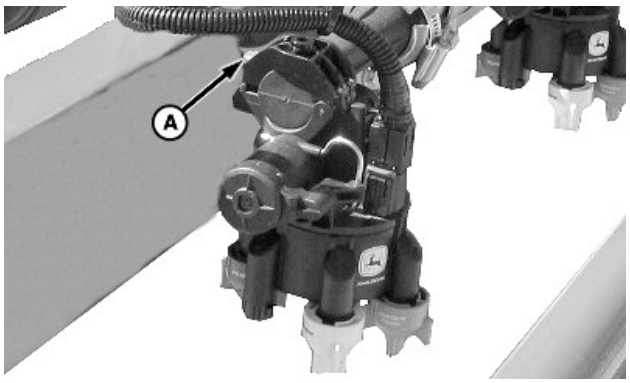
N136849—UN—18APR18

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).

BN55050,0000571-19-19APR21

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.

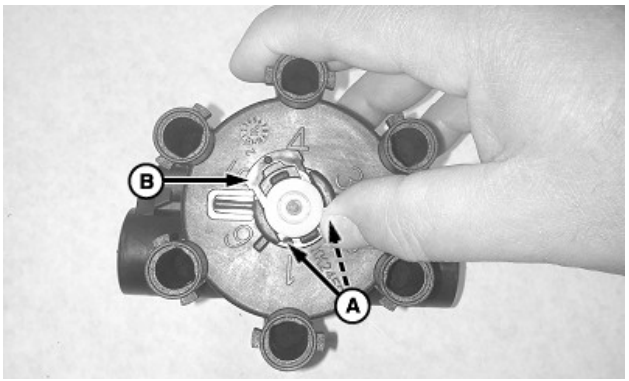
Relieve trapped pressure in the spray boom before servicing nozzle body.

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

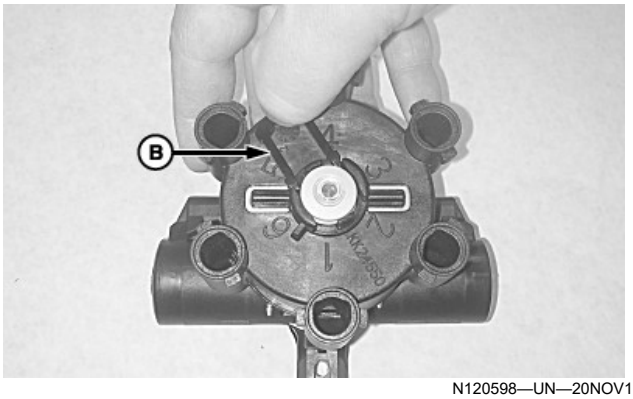
1. Perform pressure relief procedure. (See Pressure Relief in the Operating Nozzle Control section.)

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.)



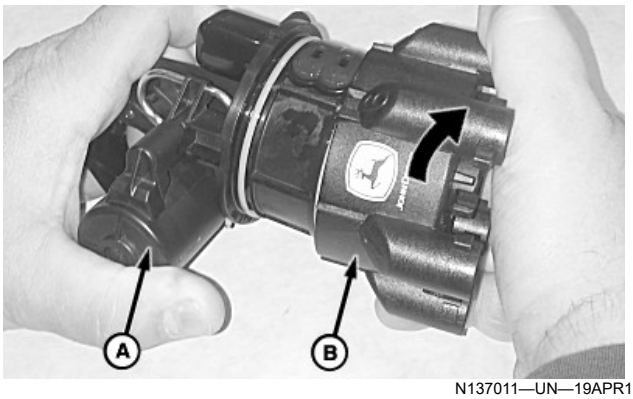
N120599—UN—24NOV15



N120598—UN—20NOV15

A—Tabs
B—Clip

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

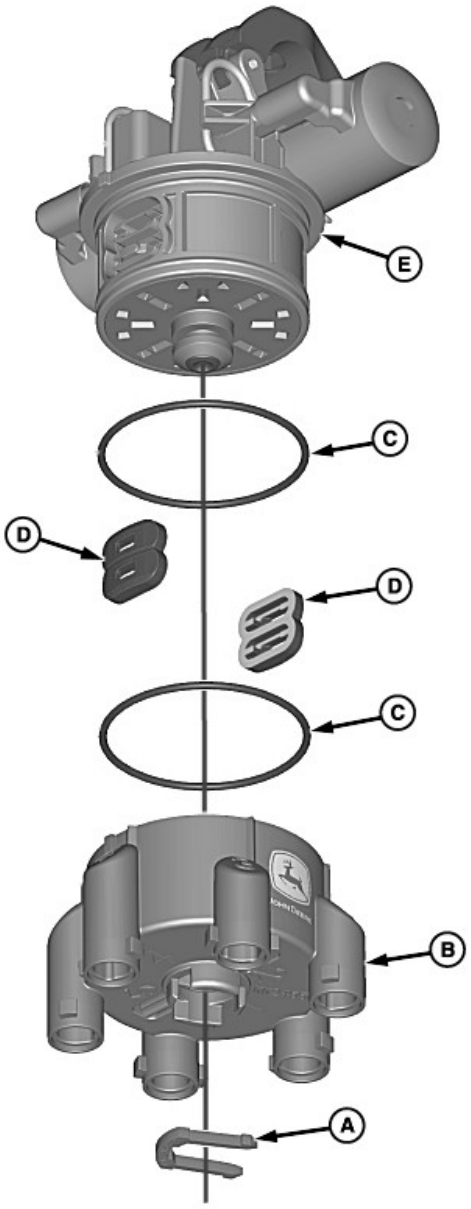


N137011—UN—19APR18

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.

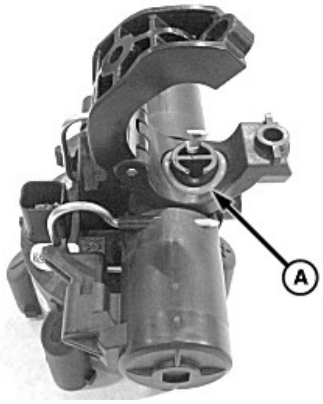
IMPORTANT: Do not allow solvent or diesel fuel to contact rubber parts, as it causes deterioration.

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

1. Perform a 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 solenoid.

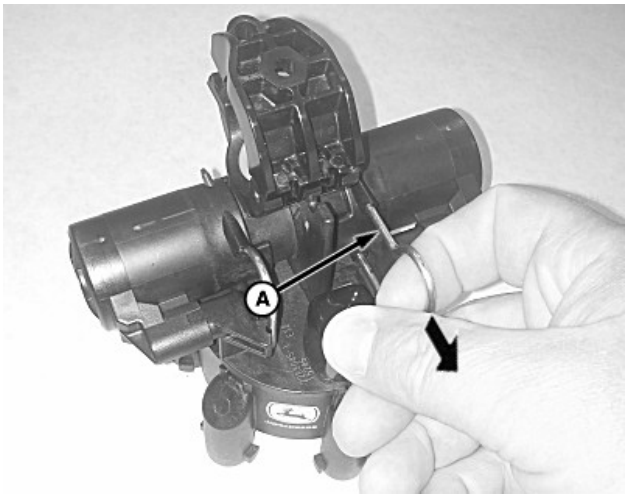
2. Remove the nozzle body from the spray boom if desired. (See Remove and Install Nozzle Body—As Required in this section.)



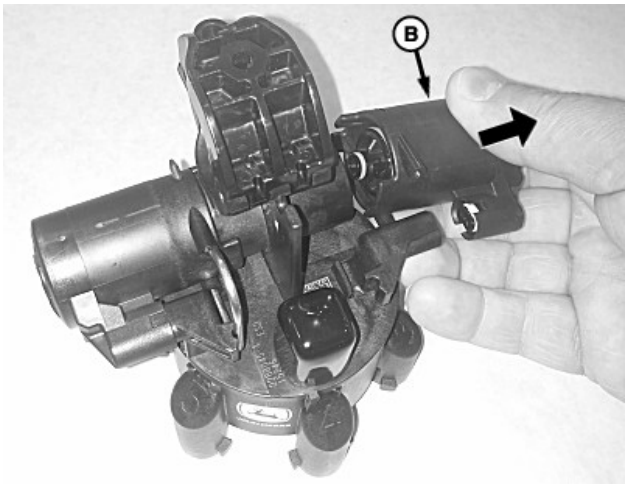
N120583—UN—27FEB17

A—O-Ring

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



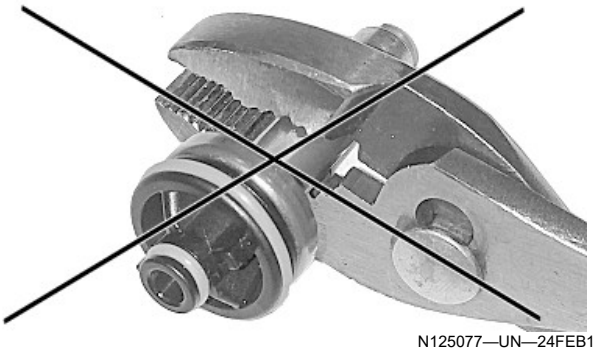
N120586—UN—27FEB17



N120590—UN—27FEB17

A—Clip
B—Solenoid

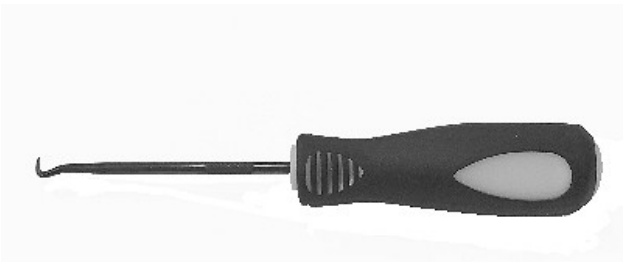
5. Remove clip (A) and solenoid (B).



N125077—UN—24FEB17

Incorrect

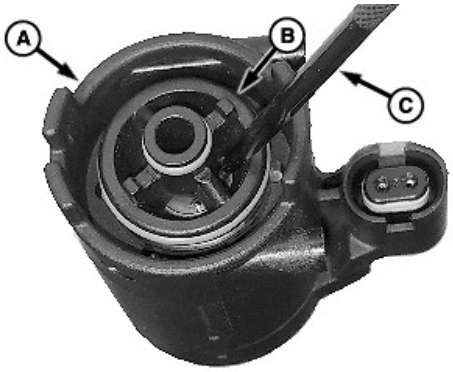
IMPORTANT: Do not use a channel lock or pliers on the tube of the cartridge.



N128224—UN—27FEB17

PT21225 Offset Hook

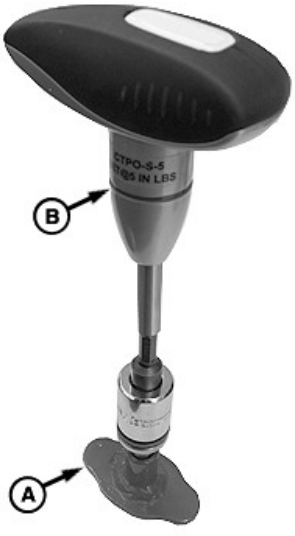
Do not damage components when using the offset hook tool to remove a stuck cartridge. Use caution to maintain grip when using the tool to remove components.



N128221—UN—24FEB17

A—Solenoid
B—Cartridge Assembly
C—Offset Hook

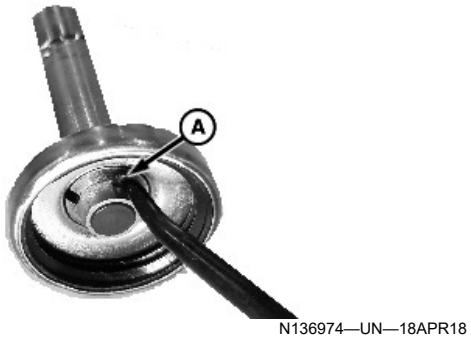
6. Remove cartridge assembly (B) from solenoid (A). If the cartridge does not pull out by hand, insert PT21225 Offset Hook (C) into a quadrant in the valve seat.



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.

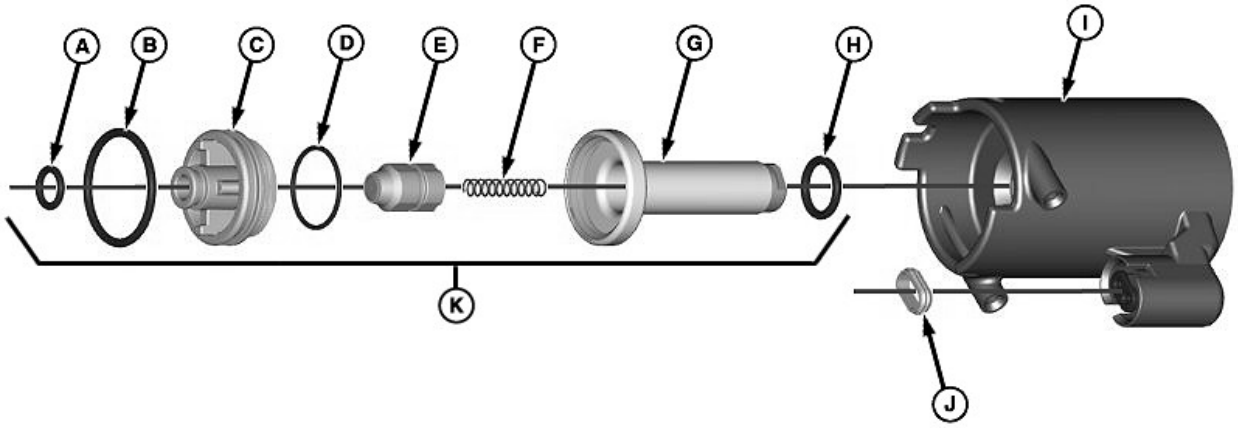


N136974—UN—18APR18

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:

Erase is a trademark of Precision Laboratories, LLC

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.)

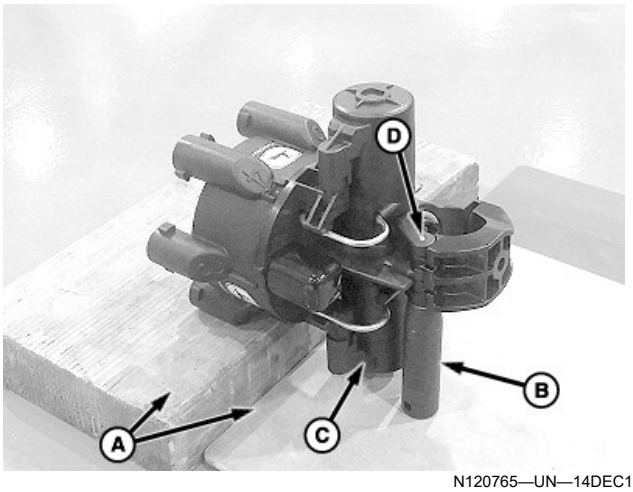
BN55050,0000572-19-19APR21

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.

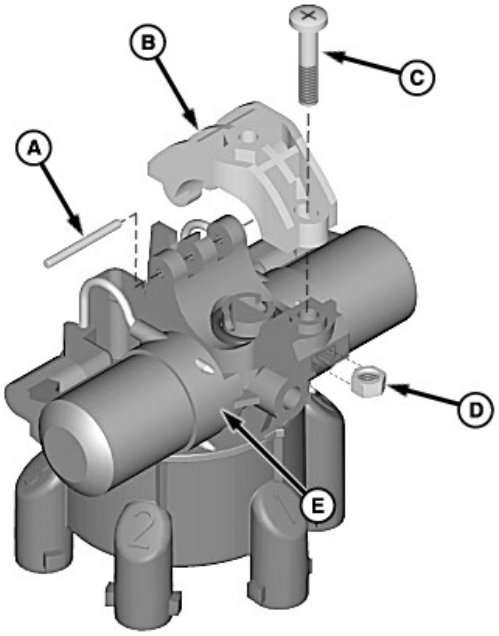
1. Perform pressure relief procedure. (See Pressure Relief in the Operating Nozzle Control section.)
2. Remove nozzle body.



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

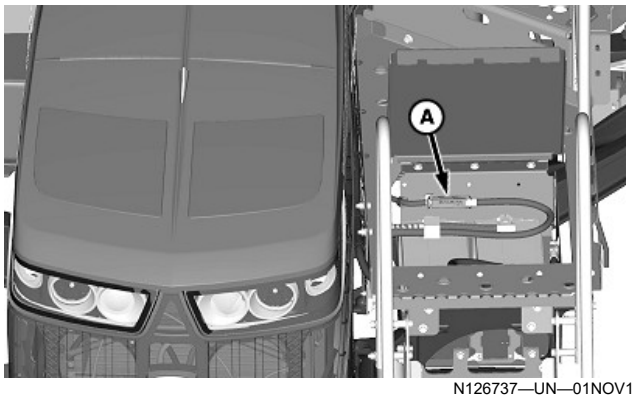
5. Inspect parts for wear or damage, replace as needed.
6. Assemble in reverse order using a C-clamp or channel-lock pliers to install pin.

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

CS12167,00009E6-19-23MAY17

Fuse Locations

Main Power Fuse



N126737—UN—01NOV16

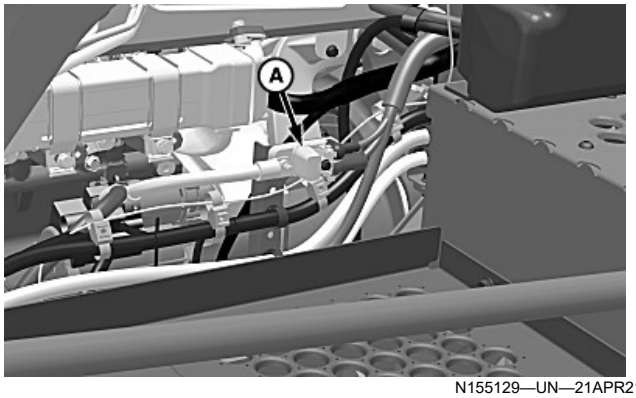
A—Main Power Fuse

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

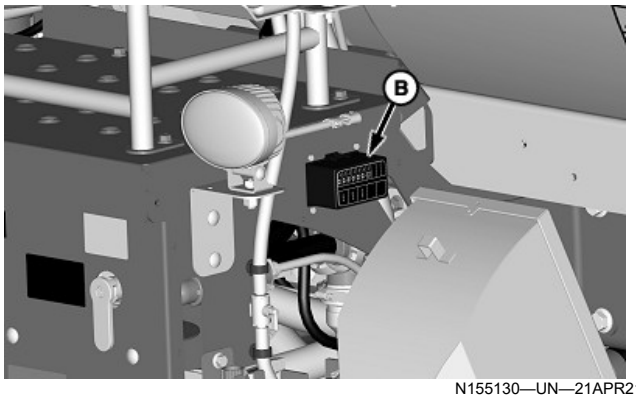
Specification

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

ExactApply™ Fuse Locations—R4023



N155129—UN—21APR21



N155130—UN—21APR21

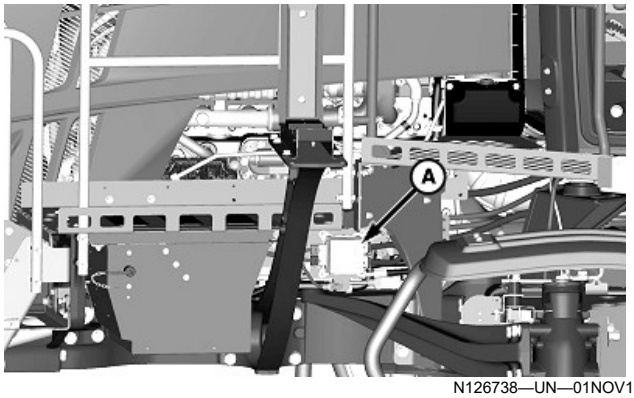
A—Fuse Holder
B—ExactApply™ Load Center

ExactApply is a trademark of Deere & Company

Fuse holder (A) is located next to the entrance platform.

ExactApply™ load center (B) is located on the rear side of the left-hand platform.

ExactApply™ Fuse Locations—R4030, R4038, R4044, R4045, and R4060

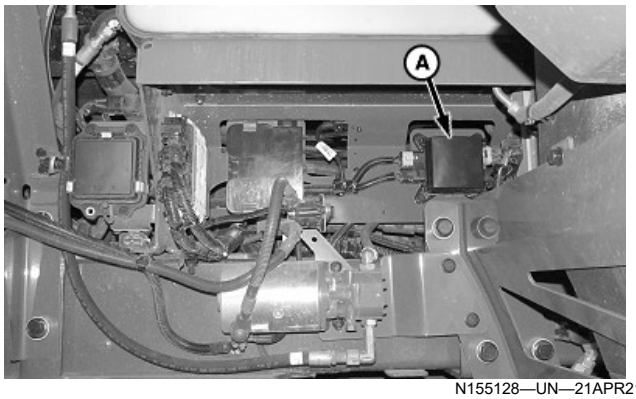


N126738—UN—01NOV16

A—Fuse Box

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

ExactApply™ Fuse Locations—408R, 410R, 412R, 612R, and 616R



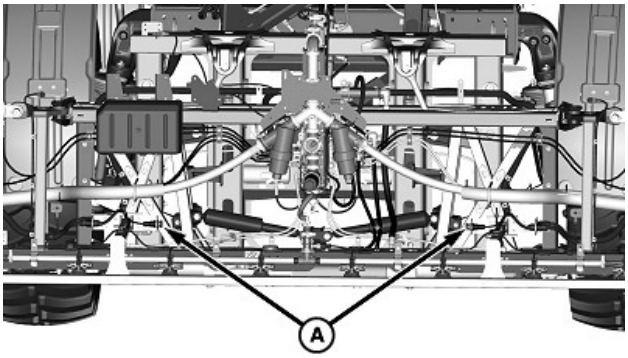
N155128—UN—21APR21

A—ExactApply™ Load Center

ExactApply™ load center (A) is located underneath the cab on the left-hand side of the machine.

BN55050,0000579-19-20APR21

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.

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.

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 two.

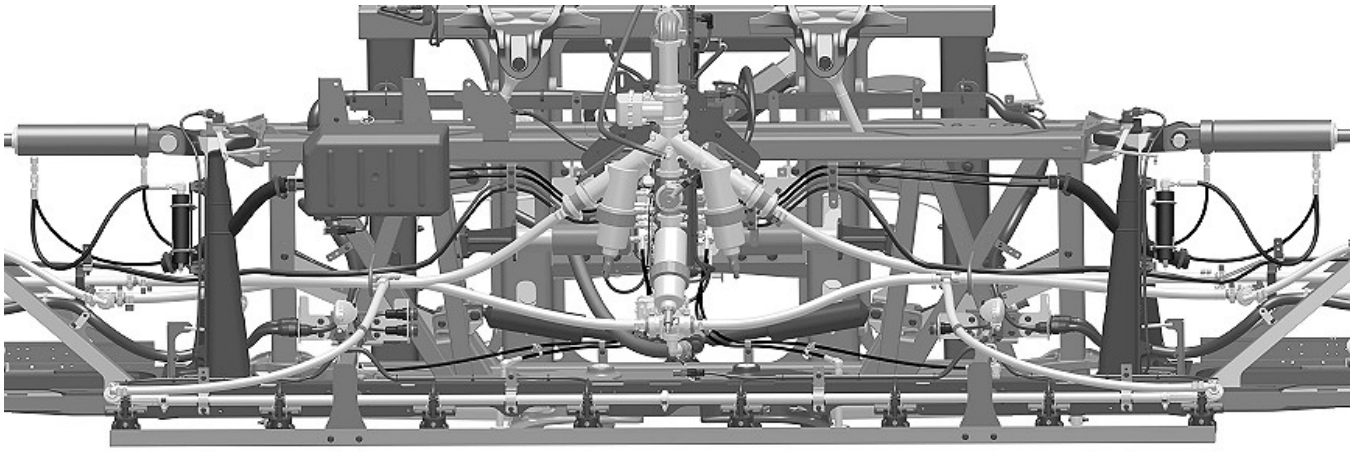
NOTE: The system allows the operator up to 2 minutes to complete the erasing process. Remote control needs to be moved closer to the receiver depending on the battery level and environment.

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

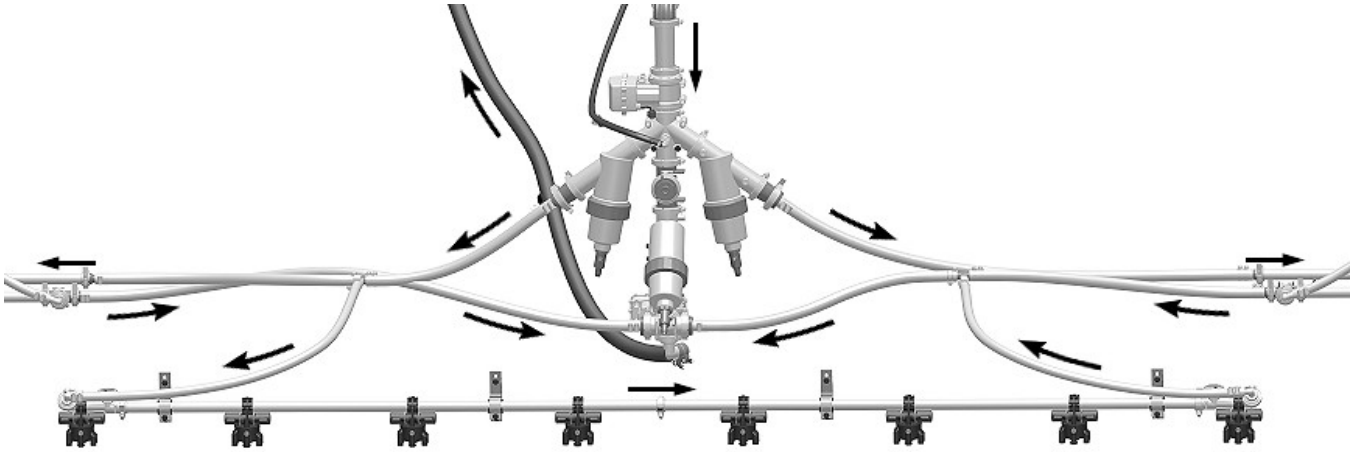
Pressure Recirculation and Product Reclaim (If Equipped)

Pressure Recirculation and Product Reclaim—Theory of Operation



N153692—UN—13JAN21

Pressure Recirculation Plumbing



N153691—UN—13JAN21

Recirculation Flow Direction

The pressure recirculation system provides a method for pushing fluid from the solution tank through the booms and spray pipes, then back to the solution tank. The system provides the ability to maintain in-pipe agitation of solution by routing the solution through the spray pipes and back to the tank when not spraying. The system also provides the ability to prime the empty boom plumbing and avoids the need of a separate air bleed function. Priming the boom without spraying on the ground saves chemical and avoids unnecessary environmental exposure.

The product reclaim system gathers fluid that would otherwise sit in the plumbing of the sprayer and pushes it back to the solution tank. This process is accomplished using pressurized air and plumbing segment isolation that can push the liquid to the tank through the solution system lines. The operator can then drain the chemical from the tank before performing a rinse procedure. Any chemical drained should be stored or disposed of according to the chemical label instructions. The amount of chemical that needs to be diluted and removed from the boom is reduced, leading to a more effective rinse process.

ExactApply™ Nozzle Control system must be installed to use pressure recirculation. ExactApply™ and Automatic Solution Control are required to use the product reclaim system.

BN55050,000051E-19-27JAN21

Operate Pressure Recirculation

1. Access the Spray System application. (See Access Spray System in the Spray System Application section.)

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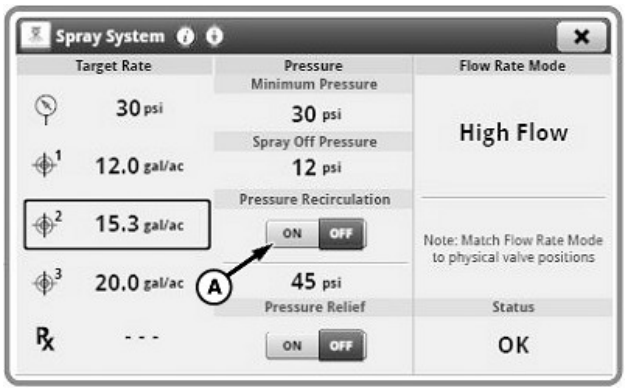
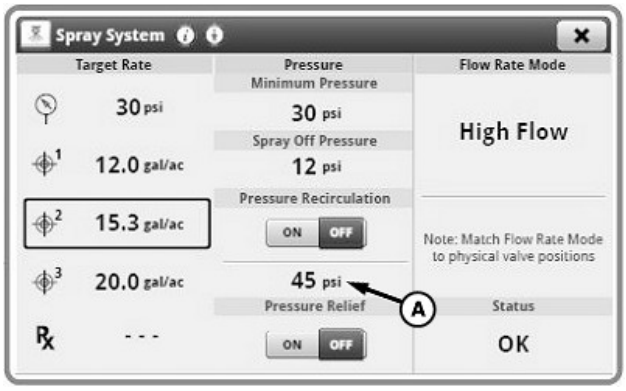


N153696—UN—13JAN21

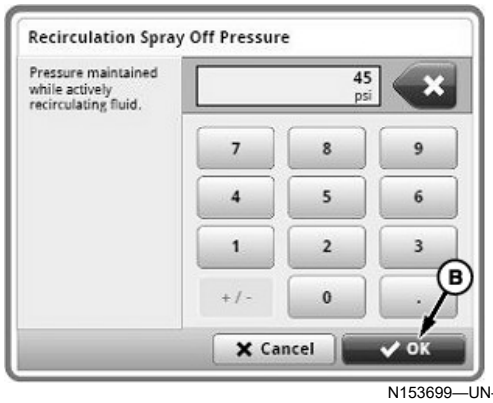
Spray System

A—ON Button

2. Press ON button (A) to enable pressure recirculation.



N153698—UN—13JAN21



N153699—UN—15JAN21

A—Button
B—OK Button

3. Press button (A) to change the recirculation pressure.

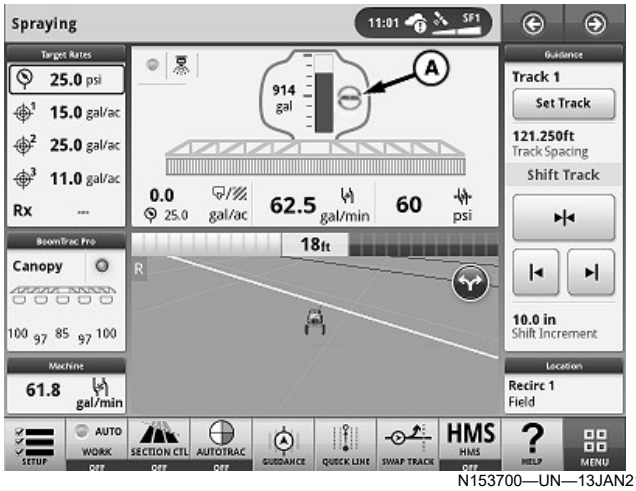
NOTE: Set to Spray OFF pressure (or desired field spray pressure) unless the chemical is susceptible to suspensions.

4. Type in the desired pressure using the keypad and press OK button (B).

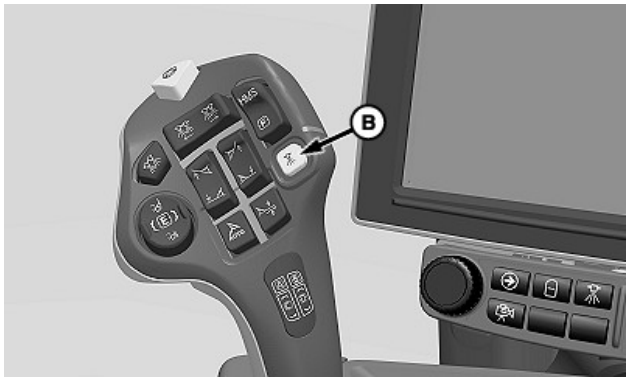
N153706—UN—15JAN21

A—Solution Pump Switch

5. Press solution pump switch (A) to engage the solution pump and start pressure recirculation.



N153700—UN—13JAN21



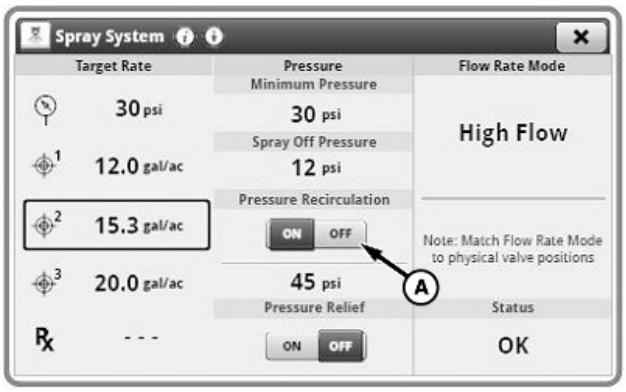
N153707—UN—15JAN21

A—Pressure Recirculation Icon
B—Spray System Master Switch

NOTE: Pressure recirculation icon (A) appears on the home screen while pressure recirculation is active.

Pressure recirculation remains active until the spray system is turned on using spray system master switch (B). Once the spray system is turned off, there is a 2-minute delay until pressure recirculation is active again.

NOTE: Turning off the solution pump stops pressure recirculation. Pressure recirculation remains in the enabled state until it is disabled on the Spray System application.



N153697—UN—13JAN21

A—OFF Button

6. Press OFF button (A) to disable pressure recirculation.

BN55050,0000522-19-27JAN21

Operate Product Reclaim

CAUTION: Keep away from overhead power lines. Serious death to you or others can result if the machine contacts electrical wires. Know the transport height, boom operating height, and boom folding height of the machine.

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

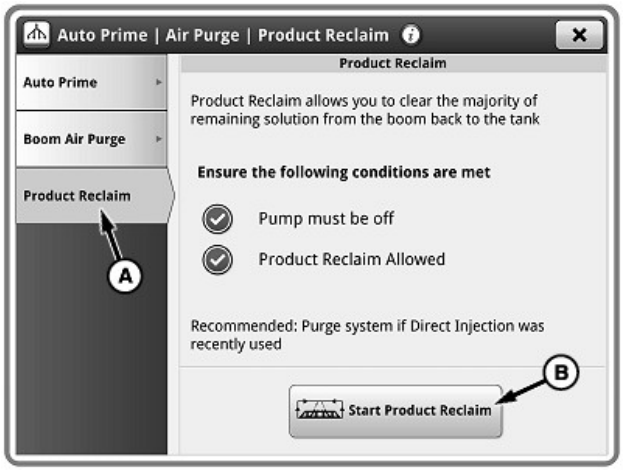
NOTE: Product reclaim can be operated with the booms folded in the cradles. Performance is reduced in the folded position.

Tilting the booms to the highest position reduces residual fluid and achieves the best performance.

1. Tilt the booms to the highest position.

NOTE: Raising the center frame to the highest position is also recommended to achieve the best performance.

2. Verify that the solution pump is turned off.
3. Access the Auto Prime, Air Purge, and Product Reclaim application. (See Access Auto Prime, Air Purge, and Product Reclaim in the Auto Prime Application section.)

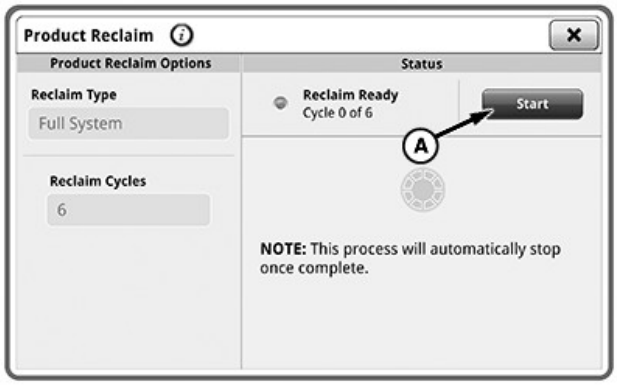


N153846—UN—21JAN21

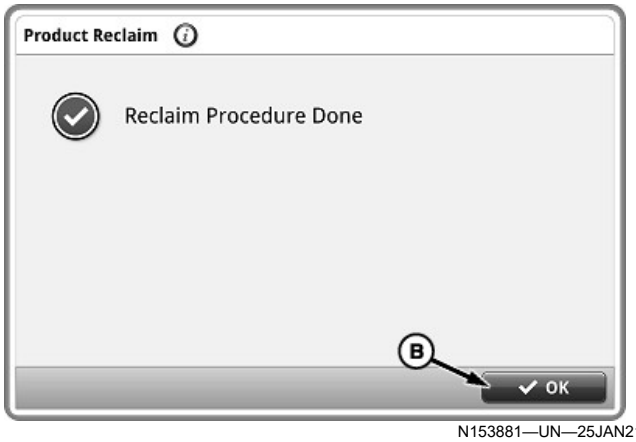
Auto Prime, Air Purge, and Product Reclaim

A—Product Reclaim Button
B—Start Product Reclaim Button

4. Press Product Reclaim button (A).
5. Press Start Product Reclaim button (B).



N153704—UN—21JAN21



N153881—UN—25JAN21

A—Start Button
B—OK Button

6. Press Start button (A) to begin product reclaim.
7. Press OK button (B) to complete the product reclaim procedure.

BN55050,0000523-19-27JAN21

Pressure Recirculation and Product Reclaim Troubleshooting

Symptom	Problem	Solution
Pressure recirculation not starting.	Solution pump is turned off.	Turn on the solution pump. Pressure recirculation should start immediately.
	Spray system master switch was recently turned off.	Wait 2 minutes until pressure recirculation resumes flow.

Symptom	Problem	Solution
Pressure recirculation not showing flow on the display.	Plugged solution hose.	Check and unplug the hose.
	Flowmeter plugged or dirty.	Clean the flowmeter.
	Flowmeter faulty.	See your John Deere dealer or qualified service provider.
Product is not returning to the tank but the recirculation icon is displayed.	Plugged solution hose.	Check and unplug the hose.
Product is not returning to the tank.	Product reclaim was recently ran.	Wait 30 seconds after product reclaim procedure for fluid to begin flowing.
Product reclaim not starting.	Air leak in the system.	Check for leak and repair.
	Remote load is active.	Turn off remote load.
	Solution pump is turned on.	Turn off the solution pump.
	Air purge is active.	Deactivate air purge.
	Active diagnostic trouble code for the product reclaim system.	Remedy any active diagnostic trouble codes.
Product reclaim cycle not completing due to timing out.	Air leak in the system.	Check for leak and repair.
	Pressure sensor faulty.	See your John Deere dealer or qualified service provider.
	3-way air valve is stuck.	Inspect and ensure that the valve is working properly.
Unable to build solution system pressure after product reclaim and receiving a pump dry warning.	Solution pump removed of all fluid.	Attempt to enable the solution pump again.
	Pump bleed valve is closed.	Inspect and ensure that the valve is open.
	Pump bleed lines are plugged.	Inspect and clear the lines of obstructions.
Pump dry warning during tank rinse after product reclaim.	Solution pump is removed of all fluid.	Attempt to enable the solution pump again.
	Pump bleed valve is closed.	Inspect and ensure that the valve is open.
	Pump bleed lines are plugged.	Inspect and clear the lines of obstructions.

Symptom	Problem	Solution
Not able to spray after product reclaim cycle but not receiving a pump dry warning.	Recirculation valve is stuck.	Inspect and ensure that the valve is working properly.
	Boom isolation valve is stuck.	Inspect and ensure that the valve is working properly.
Too much solution in the lines after product reclaim (more than 15 L).	Poor performance due to boom position.	Ensure that the booms are tilted to the highest position during product reclaim for best performance.
Air purge releases air too fast after a product reclaim cycle.	Low volume of solution in the system.	This is typical due to product reclaim removing most of the fluid.

BN55050,000051F-19-27JAN21

Product Reclaim Valve Specifications

Valve Specifications	
General	
Type	Ball Valve
Size	12.7 mm (1/2 in) Flow Passage
Configuration	3-Way, Open/Close/Open
Pressure	
Working Pressure	Greater than 1030 kPa (10.3 bar) (150 psi)
Burst Pressure	Greater than 1720 kPa (17.2 bar) (250 psi)
Electrical	
Voltage	9—16 Volts (12 Volts nominal)

BN55050,0000526-19-27JAN21

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

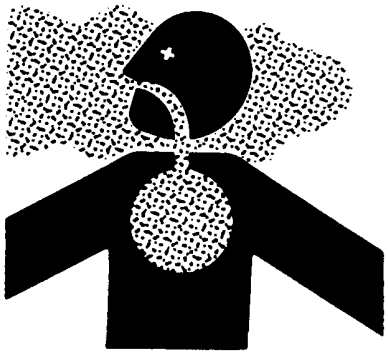
Remote Nozzle Control

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.

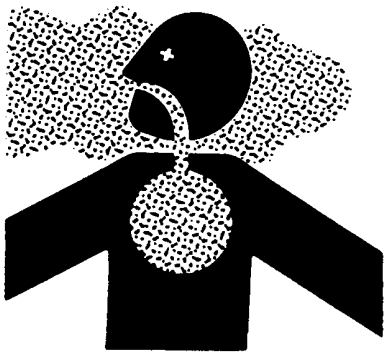
Reduce risk of exposure and injury:

- 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.

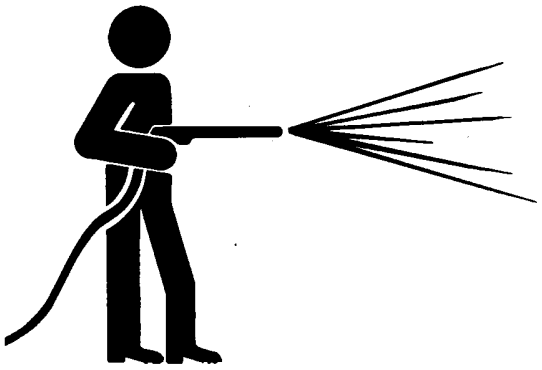
To reduce risk of chemical exposure:

- 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

BN55050,0000462-19-29APR20

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.

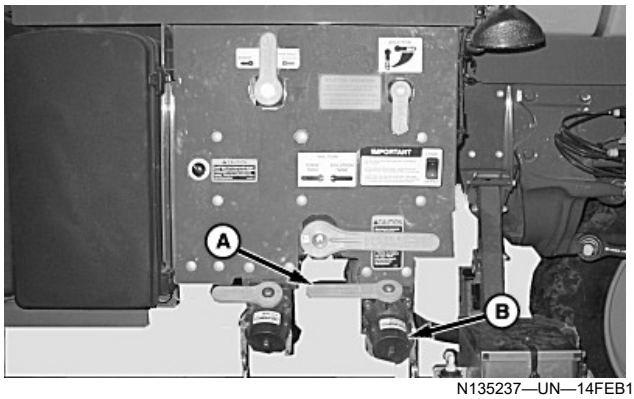
Flush the system as follows:

1. Mix a household detergent with 95 L (25 gal) of water

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

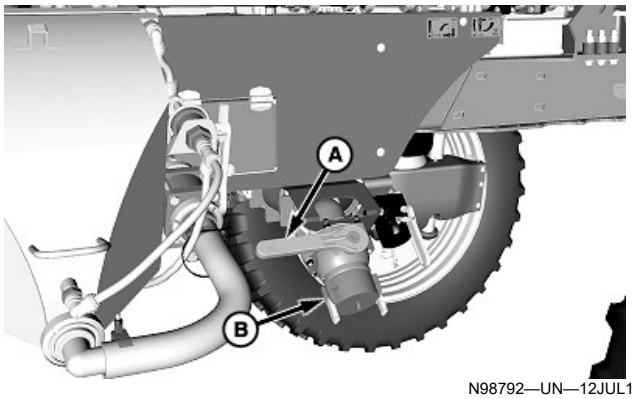
or use either Incide-Out™ Spray Tank Cleaner (PM434QT) or Erase™ Spray System Cleaner (PM433QT) and circulate through the system for 30 minutes, then drain.

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.



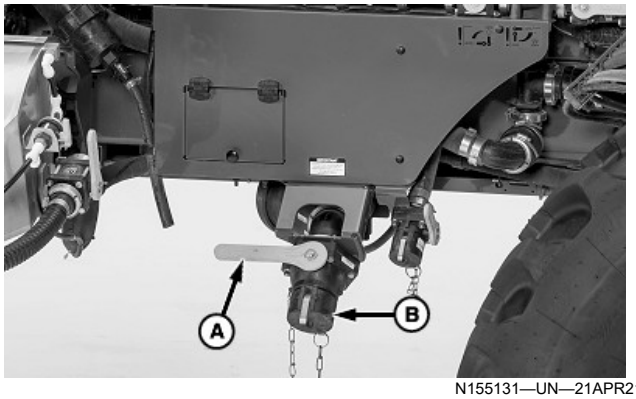
N135237—UN—14FEB18

R4023



N98792—UN—12JUL13

R4030, R4038, R4044, R4045, and R4060



N155131—UN—21APR21

408R, 410R, 412R, 612R, and 616R

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).

BN55050,000057A-19-20APR21

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

To add SprayMaster™ Winterizer Fluid to the 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 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 Pressure Relief in the Operating Nozzle Control section.)

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

SprayMaster is a trademark of Deere & Company

N151449—UN—27MAY20

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.

BN55050,000057B-19-20APR21

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 winter grade diesel fuel or treat the tank with diesel winterizer according to product label instructions.

IMPORTANT: Long-term storage in the 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 could 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 Drivetrain section of the machine Operator's Manual.)
3. Drain the eye wash tank.
4. **Front Fill (If Equipped):** Open the front fill isolation valve and use the 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 the 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 will be a Propylene Glycol type rated for at least 8°C (15°F) below the lowest expected ambient temperature the machine is subjected to during storage. To prevent damage to the seals and hoses, do not use other cheaper methanol, ethanol, or isopropanol type fluids.

10. Fill the rinse tank with 190 L (50 gal) of winterizer fluid. R/V antifreeze or JD Winterizer Fluid is available in 9.46 L (2.5 gal) jugs (N305634) or 208 L (55 gal) drums (TY26555)
11. Perform foam marker storage procedure. (See Prepare Foam Marker System for the 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
       - Pressure Recirculation/Product Reclaim (if equipped)

Load Command is a trademark of Deere & Company

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

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

b. **For machines not equipped with pressure recirculation,** after the rinse procedure is complete, unfold the booms and spray the rinse solution in a safe location where contamination cannot occur.

For machines equipped with pressure recirculation, after the rinse procedure is complete, unfold the booms. Enable pressure recirculation and turn on the solution pump. Allow pressure recirculation to fill the solution system plumbing with winterization fluid (approximately 30 seconds). Spray the 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.
    - Bypass—activate for minimum of 10 seconds.
    - Solution Tank Rinse—activate for minimum of 10 seconds.
14. **Machines Equipped with ExactApply™:**
    a. Select A + B spray mode. See the ExactApply™ operator’s manual.
    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 Procedure in the Calibrations section of the machine Operator’s Manual.)
    d. Allow the winterizer fluid to spray until the solution tank is empty.
15. **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.
16. **Load Command™ (If Equipped):**

    Rinse the Load Command™ system. (See Rinsing Load Command™ in the Load Command™ section of the machine Operator’s Manual.)
17. For high flow solution pump machines, verify that the flowmeter valve is in the OPEN position.
18. Close all nozzle turrets other than the ones on each end of every spray pipe.
19. 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 Procedure in the Calibrations section of the machine Operator’s Manual.)
20. 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.
21. Spray winterizer fluid using the boom only rinse function until a pump dry warning is displayed.
22. If equipped with boom air purge, use this function to remove excess winterizer fluid from the boom plumbing.

BN55050,000057C-19-20APR21

Prepare Machine for Storage

1. Clean the machine thoroughly, inside and outside. (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.

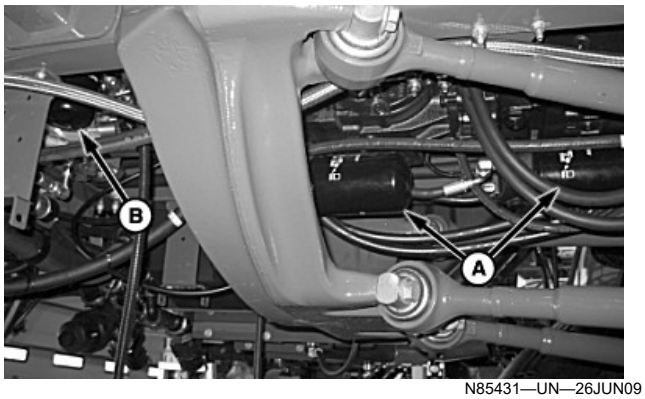
ExactApply is a trademark of Deere & Company

N151449—UN—27MAY20

A—Plug

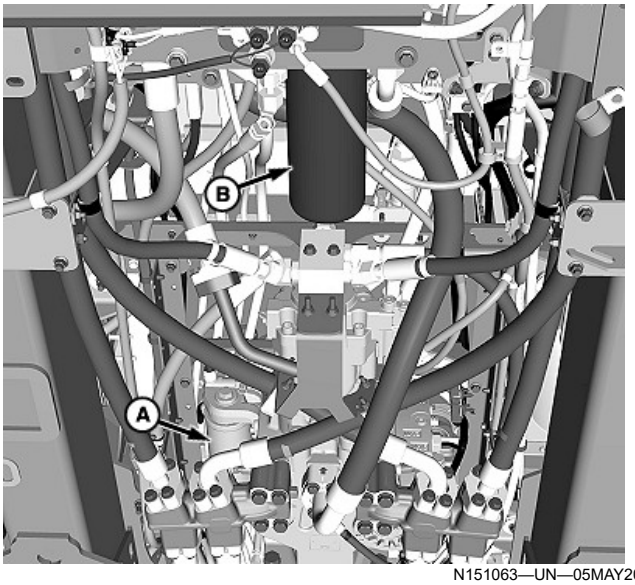
NOTE: Plugs are only needed for the R4023 or sprayers equipped with carbon fiber booms. The two open turrets in the spray position on the nozzle body are the only turrets that require a plug.

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.)



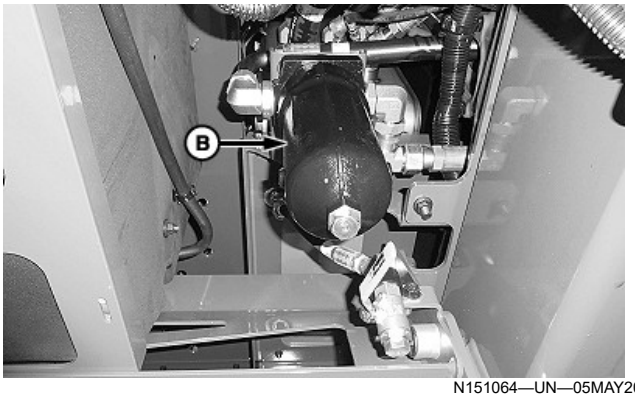
N85431—UN—26JUN09

R4023



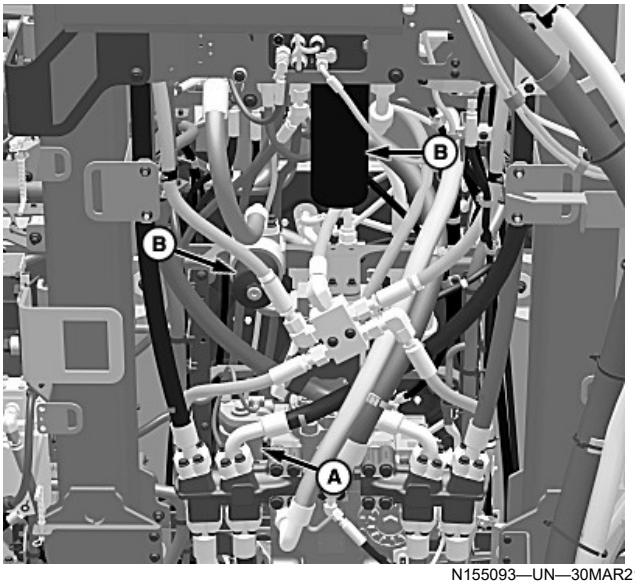
N151063—UN—05MAY20

R4030, R4038, R4044, R4045, and R4060



N151064—UN—05MAY20

R4030, R4038, R4044, R4045, and R4060



N155093—UN—30MAR21

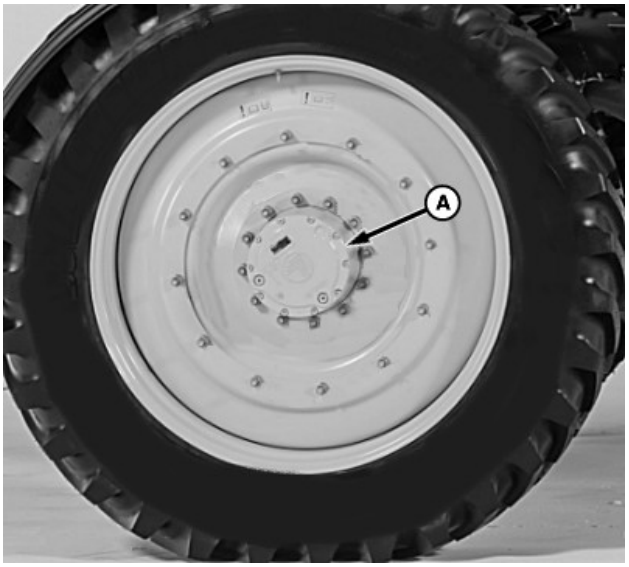
408R, 410R, 412R, 612R, and 616R

A—Hydrostatic Filter
B—Hydraulic Filter

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

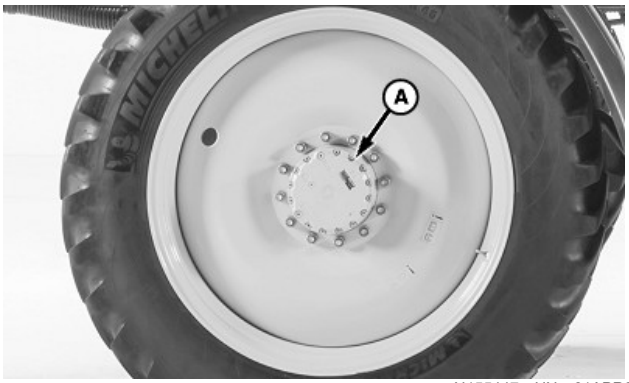
N96342—UN—19DEC11

R4023



N130089—UN—09MAY17

R4030, R4038, R4044, R4045, and R4060



N155447—UN—21APR21

408R, 410R, and 412R

N155448—UN—21APR21

612R and 616R

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 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 the 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).

Fluid Film is a trademark of Eureka Chemical Company

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

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

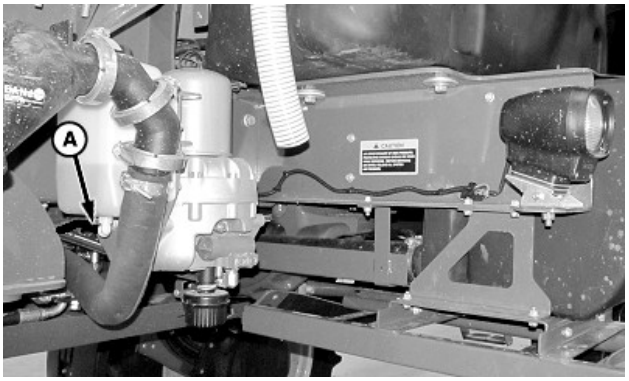
IMPORTANT: Long-term storage in vehicle (over six months) is not recommended. If long-term storage is necessary, periodic testing of diesel exhaust fluid (DEF) is recommended to ensure that urea concentration does not fall out of specification.

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.

BN55050,000057D-19-20APR21

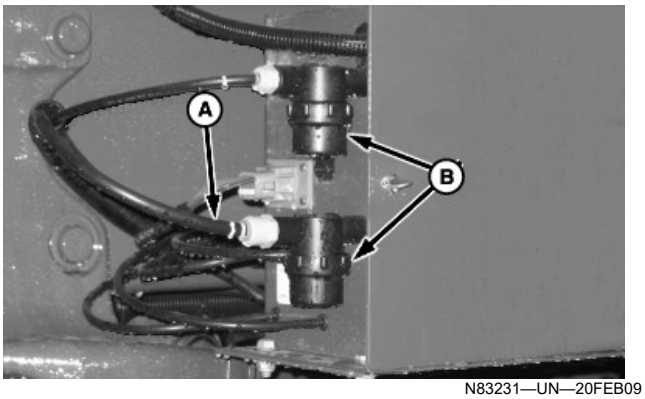
Prepare Foam Marker System for Cold-Weather Storage

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.



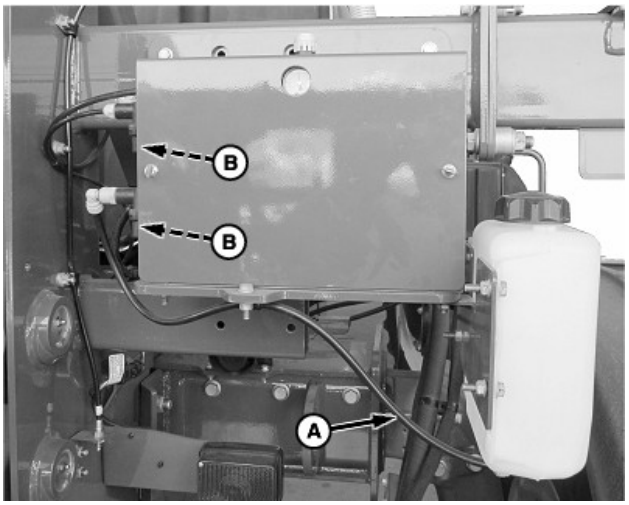
N116056—UN—25FEB15

R4023



N83231—UN—20FEB09

R4023



N98804—UN—17SEP12

R4030, R4038, R4044, R4045, R4060, 408R, 410R, 412R, 612R, and 616R

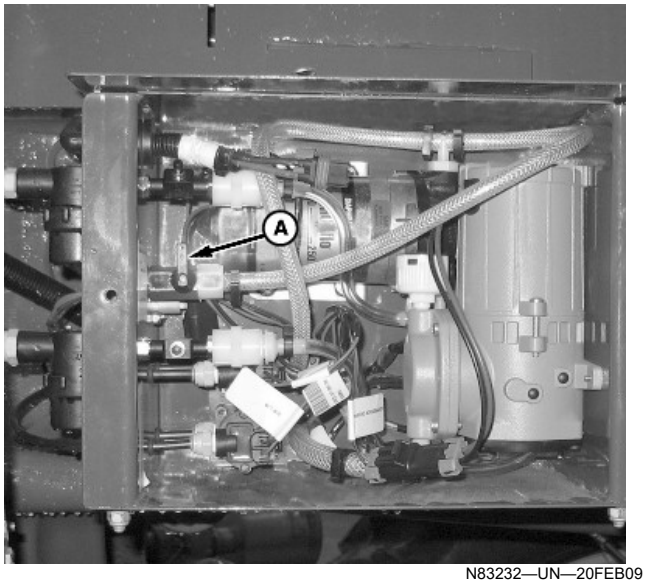
A—Hose

B—Filter

1. Disconnect 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 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 filters (B).

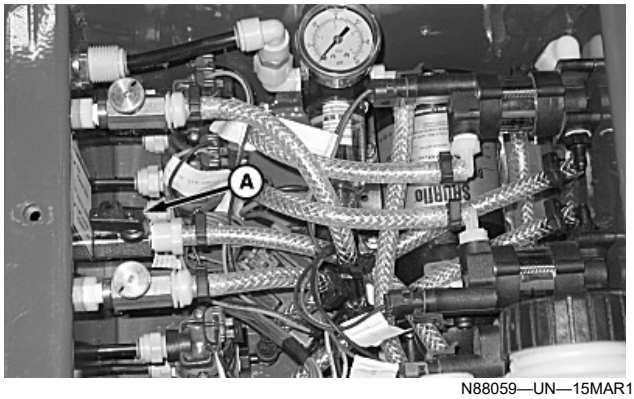
NOTE: Following the manufacturer's directions, mix SprayMaster™ Winterizer Fluid at the correct ratio to protect the solution system down to the lowest expected temperature.

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 Spray System Application section of the machine Operator's Manual.)



N83232—UN—20FEB09

R4023



N88059—UN—15MAR10

R4030, R4038, R4044, R4045, R4060, 408R, 410R, 412R, 612R, and 616R

A—Priming Valve

8. Remove the foamer control box cover and open 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.

BN55050,000057F-19-21APR21

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 sealing tape and plastic bags from 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 reconnect.
5. Fill the fuel tank with proper grade diesel fuel.
6. **Final Tier 4 and Stage V engines only**—If diesel exhaust fluid (DEF) tank has not been drained, test urea concentration. (See Testing Diesel Exhaust Fluid [DEF] in the Fuel, Lubricants, and Coolant section of the machine Operator's Manual.) If concentration is not within specifications, drain and replace with new or known good DEF. If DEF tank

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

NOTE: Instructions for lifting the machine can be found in Install Optional Tires in the Wheels and Tires section of the appropriate machine Operator's Manual.

12. Lift each corner of the machine and remove stands.
13. Ensure that all hardware is tight.
14. Lubricate all grease fittings.
15. Check the oil level in the planetary hubs. If low, check for leaks. Add oil as required.
16. Remove plugs from the nozzle body turrets if necessary.
17. Add clean water in the solution tank and operate the system to check for leaks before installing nozzle tips and screens.
18. Inspect the nozzle tips, making sure that they are all the same size. Install tips and screens.
19. **For machines not equipped with pressure recirculation,** perform a boom air bleed. (See Recommendations for Eliminating Air from Solution System in the Wet System section of the machine Operator's Manual.)
20. **For machines equipped with pressure recirculation,** operate the pressure recirculation system. (See Recommendations for Eliminating Air from Solution System in the Wet System section of the machine Operator's Manual.)
21. Operate the spraying system and observe spray patterns. Adjust or replace tips as necessary.
22. Review the Operator's Manual for operating adjustments and safety information.
23. Calibrate the sprayer.
24. Check the fire extinguisher gauge (if equipped) for the proper charge.
25. Check the air conditioning refrigerant charge. Have the system charged if necessary.

BN55050,000057E-19-20APR21

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Machine Specification

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

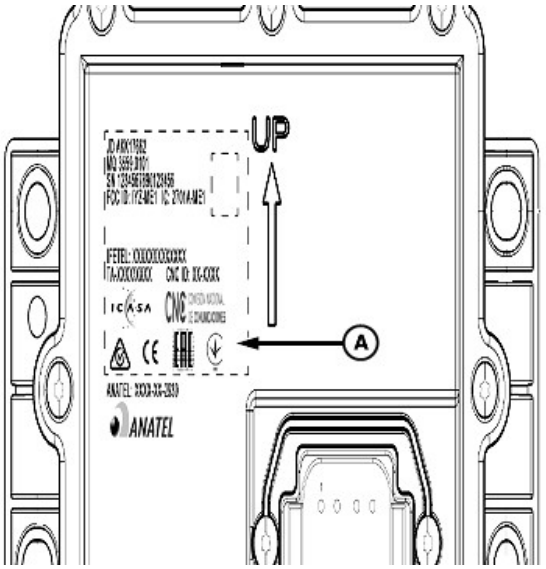
NOZZLES—30.5 m (100 ft) BOOM	
Standard	
508 mm (20 in) Spacing off Center	
Number of Nozzles	60
381 mm (15 in) Spacing on Center	
Number of Nozzles	81
Installation	Factory

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

NOZZLES—40.2 m (132 ft) BOOM	
Standard	
508 mm (20 in) Spacing off Center	
Number of Nozzles	80
381 mm (15 in) Spacing on Center	
Number of Nozzles	107
Installation	Factory

BN55050,00003D7-19-13MAY19

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

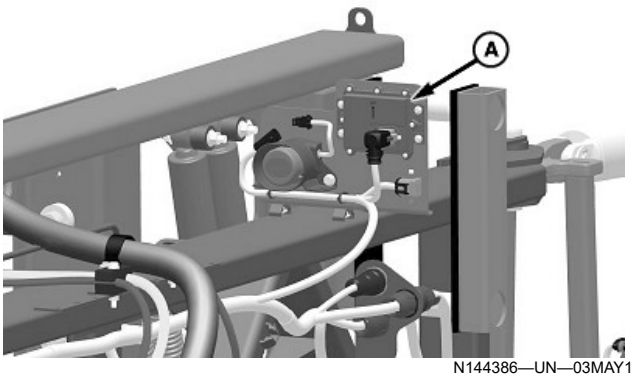
Argentina

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

N137303—UN—18JUL18

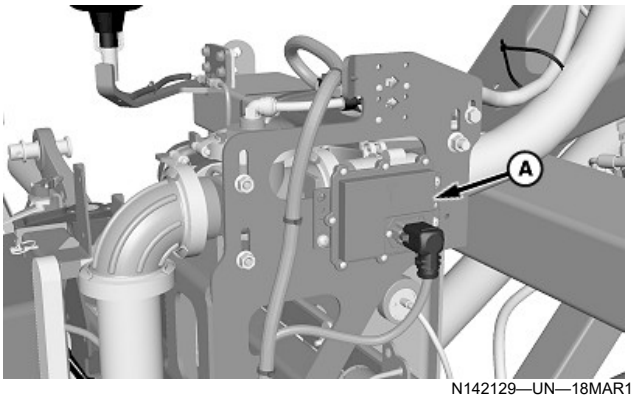
BN55050,00003F0-19-03JUN19

Identification Numbers



N144386—UN—03MAY19

R4023



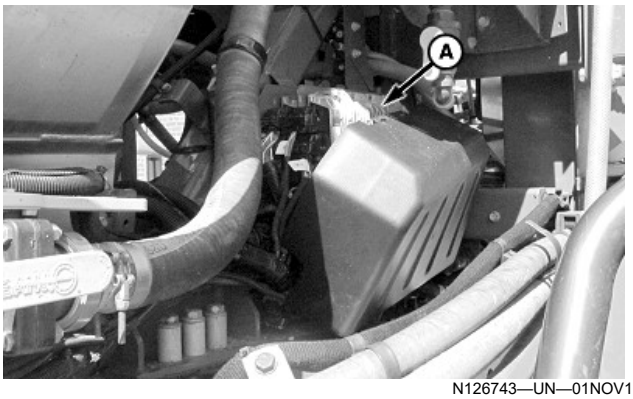
N142129—UN—18MAR19

R4030, R4038, R4044, R4045, and R4060

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

_____

OUO6092,0000DEC-19-03MAY19

Eurasian Economic Union

TS1738—UN—26APR16

EAC Marking

This information applies only to products which bear the EAC conformity mark of the Eurasian Economic Union member states.

Manufacturer:
Deere & Company, Moline, Illinois U.S.A.

Name of the authorized representative in the Eurasian Economic Union:
Limited Liability Company
“John Deere Rus”

Address of the authorized representative:
142050, Russia, Moscow region, Domodedovo district, Domodedovo, Beliye Stolbi micro district, vladenye “Warehouse 104”, Building 2

For technical support, contact your dealer.

Date of manufacture is denoted by the product marking on or near the serial number plate.

DX,EAC-19-27APR16

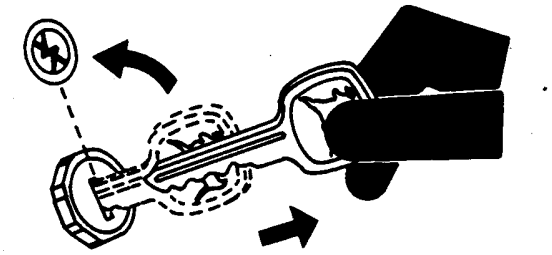
Keep Proof of Ownership

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

Index

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V

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

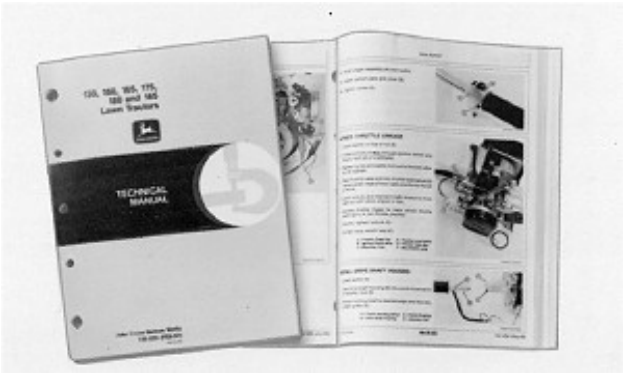
Available information includes:

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

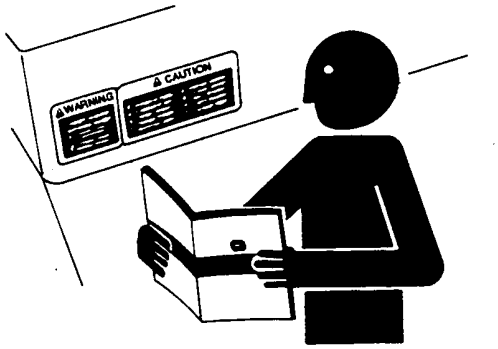
EDUCATIONAL CURRICULUM including five comprehensive series of books detailing basic information regardless of manufacturer:

- 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