Form No. 3395-784 Rev D

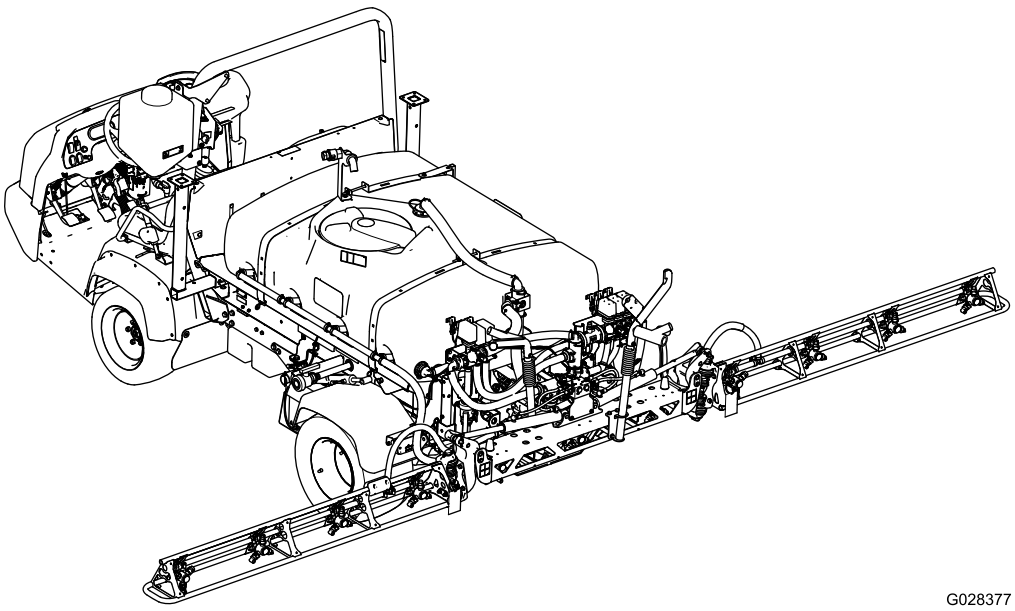
TORO®

Count on it.

Operator's Manual

Multi Pro® WM Turf Sprayer

Model No. 41240—Serial No. 315000001 and Up



G028377

Note: The installation of the Multi Pro WM requires the installation of one or more interdependent kits. Contact your Authorized Toro Dealer for more information.

Register at www.Toro.com.
Original Instructions (EN)

CE

3395-784 D

The Multi Pro WM is a dedicated turf spray modification for Workman vehicles and is intended to be used by professional, hired operators in commercial applications. It is primarily designed for spraying on well-maintained lawns in parks, golf courses, sports fields, and on commercial grounds.

This product complies with all relevant European directives; for details, please see the separate product specific Declaration of Conformity (DOC) sheet.

⚠ WARNING

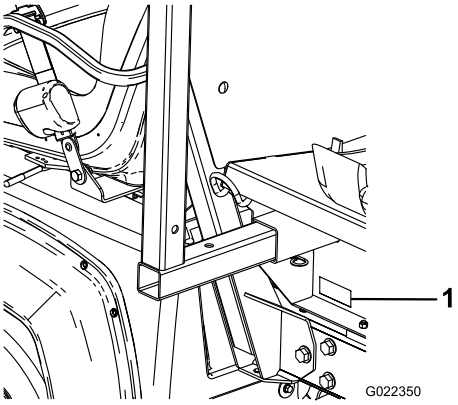
CALIFORNIA
Proposition 65 Warning

Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely. You may contact Toro directly at www.Toro.com for product safety and operational training materials, accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. Figure 1 illustrates the location of the model and serial numbers on the product.



g022350

Figure 1

1. Location of the model and serial numbers

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety alert symbol (Figure 2), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.

g000502

Figure 2

1. Safety alert symbol.

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

8111 Lyndale Avenue South
Bloomington, MN 55420

Contact us at www.Toro.com.
Printed in the USA

Contents

Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert symbol, which means Caution, Warning, or Danger—"personal safety instruction." Failure to comply with the instruction may result in personal injury or death.

Important: **Read and understand the information in the safety section of the operator's manual for your Workman vehicle before operating the machine.**

Safe Operating Practices

Important: **The machine is designed primarily as an off-road vehicle and is not intended for extensive use on public roads.**

When using the machine on public roads, follow all traffic regulations and use any additional accessories that may be required by law, such as lights, turn signals, slow moving vehicle (SMV) sign, and others as required.

The Workman was designed and tested to offer safe service when operated and maintained properly. Although hazard control and accident prevention partially are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper training of the personnel involved in the operation, maintenance and storage of the machine. Improper use or maintenance of the machine can result in injury or death.

This is a specialized utility vehicle designed for off–road use only. Its ride and handling will have a different feel than what drivers experience with passenger cars or trucks. So take time to become familiar with your Workman.

Not all of the attachments that adapt to the Workman are covered in this manual. See the *Installation Instructions* provided with attachment for additional safety instructions.

To reduce the potential for injury or death, comply with the following safety instructions:

Supervisor's Responsibilities

- Make sure that operators are thoroughly trained and familiar with the *Operator's Manual*, the *Operator's Manual* of the Workman vehicle, Training Material, Engine Manual, and all labels on the Workman vehicle.
- Be sure to establish your own special procedures and work rules for unusual operating conditions (e.g. slopes too steep for vehicle operation). Use the third high lockout switch if high speed could result in a safety or vehicle abuse situation.

Training

- Read the *Operator's Manual* and other training material before operating the machine.

  Note: If the operator(s) or mechanic(s) cannot read the manual language, it is the owner's responsibility to explain this material to them.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Never allow untrained people to operate or service the equipment.

  Note: Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to himself or herself, other people, or damage to property.

Before Operating

- Operate the machine only after reading and understanding the contents of this manual.
- **Never** allow children to operate the sprayer.
- **Never** allow other adults to operate the sprayer without first reading and understanding the *Operator's Manual*. Only trained and authorized persons should operate this sprayer. Make sure that all operators are physically and mentally capable of operating the sprayer.
- This sprayer is designed to carry **only you**, the operator and **one passenger** in the seat provided by the manufacturer. **Never** carry any additional passengers on the sprayer.
- **Never** operate the sprayer when under the influence of drugs or alcohol. Even prescription drugs and cold medicines can cause drowsiness.
- Do not drive the sprayer when you are tired. Be sure to take occasional breaks. It is very important that you stay alert at all times.
- Become familiar with the controls and know how to stop the engine quickly.
- Keep all shields, safety devices, and decals in place. If a shield, safety device, or decal is malfunctioning, illegible, or damaged, repair or replace it before operating the machine.

- Wear appropriate clothing; including a hard hat, safety glasses, long pants, safety shoes, rubber boots, gloves, and hearing protection. Do not wear loose fitting clothing or jewelry which could get caught in moving parts and cause personal injury. Do not operate the machine while wearing sandals, tennis shoes, or sneakers. Do not wear loose fitting clothing or jewelry which could get caught in moving parts and cause personal injury.

  Note: Wearing safety glasses, safety shoes, long pants, and a helmet is advisable and required by some local safety regulations.

- Keep everyone, especially children and pets, away from the areas of operation.
- Be extremely careful when operating around people. Always be aware of where bystanders might be and keep them away from the work area.
- Avoid driving when it is dark, especially in unfamiliar areas. If you must drive when it is dark, be sure to drive cautiously, use the headlights, and even consider adding additional lights.
- Before operating the vehicle, always check all parts of the vehicle and any attachments. If something is wrong, **stop using the vehicle.** Make sure that the problem is corrected before the vehicle or attachment is operated again.
- Make sure the operator and passenger area is clean and free from chemical residue and debris buildup.
- Ensure that all fluid line connectors are tight and all hoses are in good condition before applying pressure to the system.

  Note: Do not use the sprayer if it is leaking or damaged.

- Since fuel is highly flammable, handle it carefully.
  - Use an approved fuel container.
  - Do not remove the cap from the fuel tank when the engine is hot or running. Allow the engine to cool before fueling the machine.
  - Do not smoke while handling fuel.
  - Fill the fuel tank of the machine outdoors.
  - Fill the fuel tank of the machine to about 25 mm (1 inch) below the top of the tank (the bottom of the filler neck). Do not overfill the fuel tank.
  - Wipe up any spilled fuel.

Chemical Safety

⚠ WARNING

Chemical substances used in the spreader-sprayer system may be hazardous and toxic to you, bystanders, animals, plants, soils or other property.

- **Carefully read and follow the chemical warning labels and Material Safety Data Sheets (MSDS) for all chemicals used and protect yourself according to the chemical manufacturer's recommendations. Ensure that as little skin as possible is exposed while using chemicals. Use appropriate Personal Protective Equipment (PPE) to guard against personal contact with chemicals; personal protective equipment includes:**
  - **safety glasses, goggles, and/or face shield**
  - **respirator or filter mask**
  - **chemical resistant gloves**
  - **rubber boots or other substantial footwear**
  - **hearing protection**
  - **clean change of clothes, soap, and disposable towels, to be kept on-hand, in the event of a chemical spill.**
- **Keep in mind that there may be more than one chemical used, and information on each chemical should be assessed.**
- **Refuse to operate or work on the sprayer if this information is not available!**
- **Before working on a sprayer system, make sure that the system has been triple rinsed and neutralized according to the recommendations of the chemical manufacturer(s) and all of the valves have been cycled 3 times.**
- **Verify there is an adequate supply of clean water and soap nearby, and immediately wash off any chemicals that contact you.**
- Obtain proper training before using or handling chemicals.
- Use the correct chemical for the job.
- Follow the chemical manufacturer's instructions for the safe application of the chemical. Do not exceed recommended system application pressure.

- Do not fill, calibrate, or clean the unit when people, especially children, or pets are in the area.
- Handle chemicals in a well ventilated area.
- Have clean water available especially when filling the spray tank.
- Do not eat, drink, or smoke while working with chemicals.
- Do not clean spray nozzles by blowing through them or placing in mouth.
- Always wash your hands and other exposed areas as soon as possible after you finish working with chemicals.
- Keep chemicals in their original packages and stored in a safe location.
- Properly dispose of unused chemicals and chemical containers as instructed by the chemical manufacturer and your local codes.
- Chemicals and fumes are dangerous; never enter the tank or place your head over or in the opening of a tank.
- Follow all local, state, federal regulations for spreading or spraying chemicals.

While Operating

⚠ WARNING

Engine exhaust contains carbon monoxide, which is an odorless, deadly poison that can kill you.

Do not run engine indoors or in an enclosed area.

- Operator and passenger should remain seated whenever the machine is in motion. Operator should keep both hands on steering wheel, whenever possible and passenger should use hand holds provided. Keep arms and legs within the vehicle body at all times. Never carry passengers in the box or on attachments. Remember your passenger may not be expecting you to brake or turn and may not be ready.
- Always watch out for and avoid low overhangs such as tree limbs, door jambs, and over-head walkways. Make sure there is enough room over head to easily clear the machine, sprayer boom sections and your head.
- When starting the engine:
  - Sit on operator's seat and ensure parking brake is engaged.
  - If your machine is equipped with a PTO or hand throttle lever, disengage PTO and return hand throttle lever to Off position.
  - Move shift lever to Neutral and depress clutch pedal.
  - Keep foot off accelerator pedal.
  - Turn ignition key to Start.
- Using the machine demands attention. Failure to operate vehicle safely may result in an accident, tip over of vehicle and serious injury or death. Drive carefully. To prevent tipping or loss of control:
  - Use extreme caution, reduce speed and maintain a safe distance around sand traps, ditches, creeks, ramps, and any unfamiliar areas or other hazards.
  - Watch for holes or other hidden hazards.
  - Use caution when operating vehicle on a steep slope. Normally travel straight up and down slopes. Reduce speed when making sharp turns or when turning on hillsides. Avoid turning on hillsides whenever possible.
  - Use extra caution when operating vehicle on wet surfaces, at higher speeds or with a full load. Stopping time will increase with a full load. Shift into a lower gear before starting up or down a hill.
  - Avoid sudden stops and starts. Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
  - Slow down before turning. Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of vehicle control.
  - Do not pass another vehicle traveling in the same direction at intersections, blind spots, or at other dangerous locations.
  - Keep all bystanders away. Before backing up, look to the rear and assure no one is behind. Back up slowly.
  - Watch out for traffic when you are near or crossing roads. Always yield the right of way to pedestrians and other vehicles. This sprayer is **not** designed for use on streets or highways. Always signal your turns or stop early enough so that other people know what you plan to do. Obey all traffic rules and regulations.
  - Never operate vehicle in or near an area where there is dust or fumes in the air which are explosive. The electrical and exhaust systems of the vehicle can produce sparks capable of igniting explosive materials.
  - When draining the tank, do not let anyone stand behind vehicle and do not drain liquid on any one's feet.
  - If ever unsure about safe operation, **stop work** and ask your supervisor.

- Do not use a cab on a Workman vehicle equipped with a spray system. The cab is not pressurized and will not provide adequate ventilation when used with a sprayer. The cab will also overload the vehicle when the spray system tank is full.
- Do not touch engine, transaxle, muffler or muffler manifold while engine is running or soon after it has stopped because these areas may be hot enough to cause burns.
- If the machine ever vibrates abnormally, stop immediately, turn engine off, wait for all motion to stop and inspect for damage. Repair all damage before resuming operation.
- Before getting off the seat:
  - Stop movement of the machine.
  - Shut engine off and wait for all movement to stop.
  - Set parking brake.
  - Remove the key from the starter switch.

  Important: **Do not park the machine on an incline.**
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.

Braking

- Slow down before you approach an obstacle. This gives you extra time to stop or turn away. Hitting an obstacle can damage the vehicle and its contents. More important, it can injure you and your passenger.
- Gross Vehicle Weight (GVW) has a major impact on your ability to stop and/or turn. Heavy loads and attachments make a vehicle harder to stop or turn. The heavier the load, the longer it takes to stop.
- Turf and pavement are slick when they are wet. It can take 2 to 4 times as long to stop on wet surfaces as on dry surfaces. If you drive through standing water deep enough to get the brakes wet, they will not work well until they are dry. After driving through water, you should test the brakes to make sure they work properly. If they do not, drive slowly while putting light pressure on the brake pedal. This will dry the brakes out.

Operating on Hills and Rough Terrain

Operating the sprayer on a hill may cause tipping or rolling of the sprayer, or the engine may stall and you could lose headway on the hill. This could result in personal injury.

- Do not accelerate quickly or slam on the brakes when backing down a hill, especially with a load.
- Never drive across a steep hill; always drive straight up or down or go around the hill.
- If the engine stalls or you begin to lose headway while climbing a hill, gradually apply the brakes and slowly back straight down the hill.
- Turning while traveling up or down hills can be dangerous. If you have to turn while on a hill, do it slowly and cautiously. Never make sharp or fast turns.
- Heavy loads affect stability. Reduce the weight of the load and your speed when operating on hills.
- Avoid stopping on hills, especially with a load. Stopping while going down a hill will take longer than stopping on level ground. If the sprayer must be stopped, avoid sudden speed changes, which may initiate tipping or rolling of the sprayer. Do not slam on the brakes when rolling backward, as this may cause the sprayer to overturn.
- Use the seat belt when operating the machine and be certain that it can be released quickly in the event of an emergency.
- Check carefully for overhead clearances (i.e. branches, doorways, electrical wires) before driving under any objects and do not contact them.
- Do not remove the rollover protection system (ROPS).
- Reduce speed and load when operating on rough terrain, uneven ground, and near curbs, holes, and other sudden changes in terrain. Loads may shift, causing the sprayer to become unstable.

⚠ WARNING

Sudden changes in terrain may cause abrupt steering wheel movement, possibly resulting in hand and arm injuries.

- Reduce your speed when operating on rough terrain and near curbs.
- Grip the steering wheel loosely around the perimeter. Keep your hands clear of the steering wheel spokes.

Loading

The weight of the cargo can change the Workman center of gravity and handling. To avoid loss of control and personal injury, follow these guidelines:

- Reduce the weight of the load when operating on hills and rough terrain to avoid tipping or overturning of the vehicle.
- Liquid loads can shift. This shifting happens most often while turning, going up or down hills, suddenly changing speeds, or while driving over rough surfaces. Shifting loads can cause the vehicle to tip over.

- When operating with a heavy load, reduce your speed and allow for sufficient braking distance. Do not suddenly apply the brakes. Use extra caution on slopes.
- Be aware that heavy loads increase your stopping distance and reduce your ability to turn quickly without tipping over.

Maintenance

- Only permit qualified and authorized personnel to maintain, repair, adjust, or inspect the vehicle.
- Before servicing or making adjustments to the machine, stop the engine, set the parking brake, and remove the key from the ignition to prevent someone from accidentally starting the engine.
- Empty the tank before tilting or removing sprayer from vehicle and before storage.
- Never work under a sprayer without using tank support prop rod.
- Make sure all hydraulic line connectors are tight, and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep body and hands away from pin hole leaks that can eject hydraulic fluid under high pressure. Use paper or cardboard, not hands, to search for leaks.

⚠ DANGER

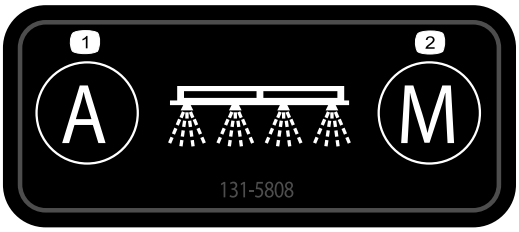
Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin and do serious damage.

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

- Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine, cycling dump valve from raise to lower and/or lowering the tank and attachments. If the tank must be in the raised position, secure it with the safety support.
- To make sure entire machine is in good condition, keep all nuts, bolts and screws properly tightened.
- To reduce potential fire hazard, keep the engine area free of excessive grease, grass, leaves and accumulation of dirt.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the engine and any moving parts. Keep everyone away.
- Do not overspeed the engine by changing the governor settings. The maximum engine speed is 3650 rpm. To assure safety and accuracy, have an Authorized Toro Distributor check maximum engine speed with a tachometer.
- If major repairs are ever needed or assistance is required, contact an Authorized Toro Distributor.
- To be sure of optimum performance and safety, always purchase genuine Toro replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous. Altering this vehicle in any manner may affect the vehicle's operation, performance, durability or its use may result in injury or death. Such use could void the product warranty of The Toro® Company.
- This vehicle should not be modified without The Toro® Company's authorization. Direct any inquiries to The Toro® Company, Commercial Division, Vehicle Engineering Dept., 300 West 82nd St., Bloomington, Minnesota 55420–1196. USA
- Refer to your vehicle's *Operator's Manual* for other maintenance.

Safety and Instructional Decals

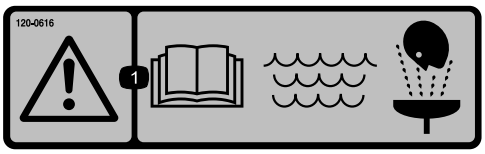
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



decal131-5808

131-5808

1. Automatic—closed loop-rate control
2. Manual—open loop-rate control



decal120-0616

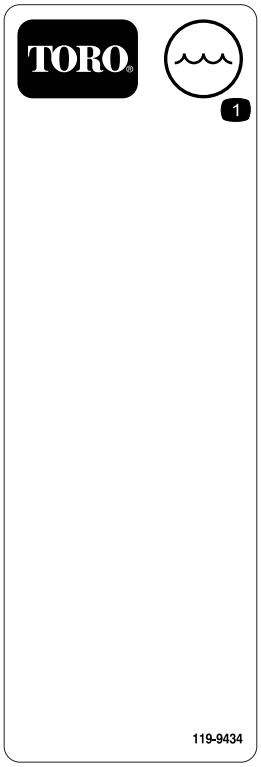
120–0616

1. Warning—read the *Operator's Manual*; use fresh, clean water for first-aid washing.

decal120-0622

120–0622

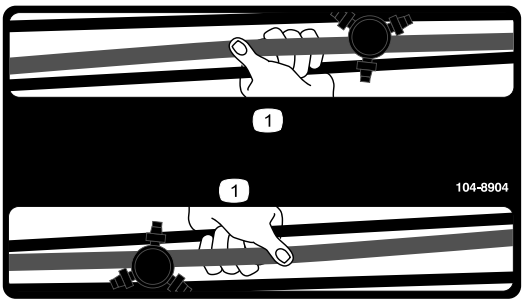
1. Warning—read the *Operator's Manual*.
2. Warning—do not enter the sprayer tank.
3. Chemical burn hazard; toxic gas inhalation hazard—wear hand and skin protection; wear eye and respiratory protection.



decal119-9434

119-9434

1. Tank contents



decal104-8904

104-8904

1. Grasp the boom here.

decal127-6976

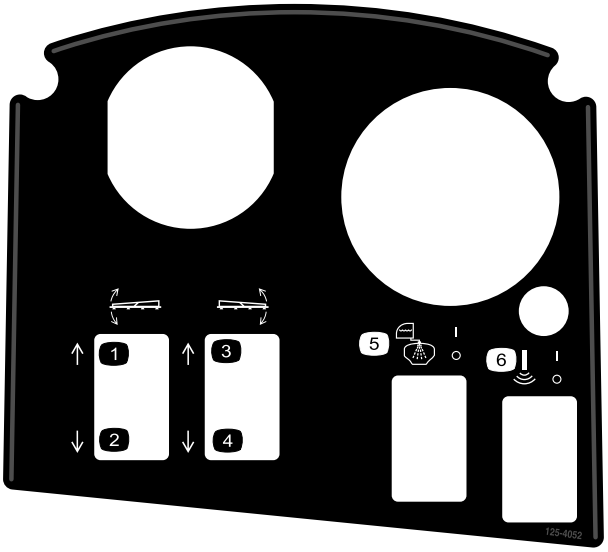
127-6976

1. Decrease
2. Increase

decal120-0617

120–0617

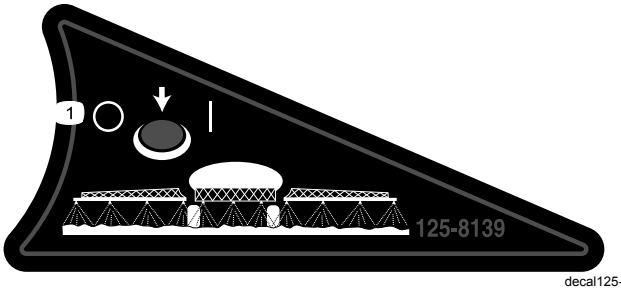
1. Severing hazard of hand, pinching point—keep away from actuated joints.
2. Crushing hazard—keep bystanders away from the machine.



decal125-4052

125–4052

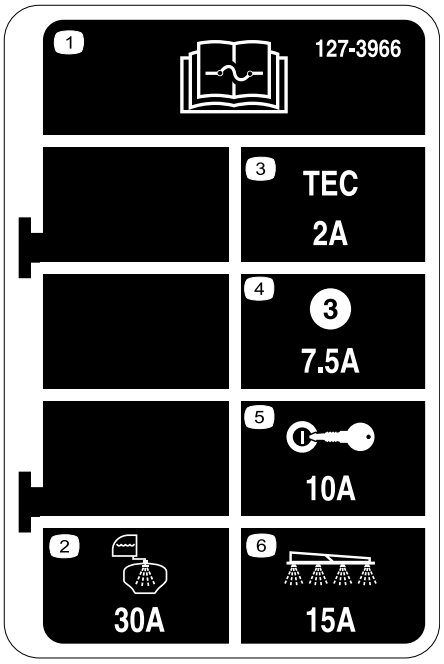
1. Raise left boom
2. Lower left boom
3. Raise right boom
4. Lower right boom
5. Toggle tank rinse on/off
6. Toggle sonic boom on/off



decal125-8139

125–8139

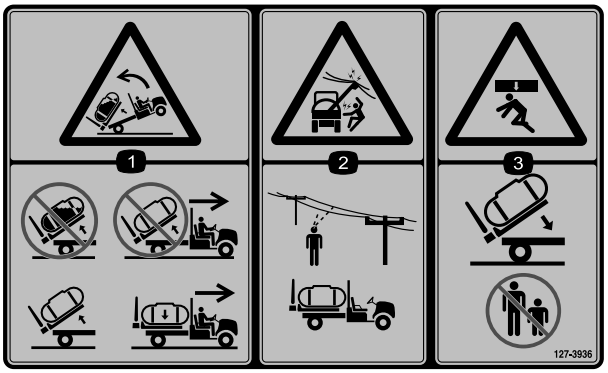
1. Toggle boom sprayers on/off



decal127-3966

127–3966

1. Read the *Operator's Manual* for information on fuses.
2. 30A—Tank rinse
3. 2A—TEC controller logic
4. 7.5A—TEC controller output
5. 10A—Ignition
6. 15A—Sprayer boom



decal127-3936

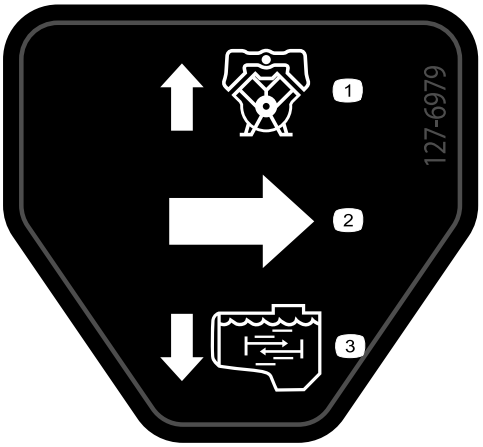
127–3936

1. Backward tipping hazard—do not raise a full tank; do not move the machine with a raised tank; only raise and empty tank; only move the machine with a lowered tank.
2. Electrical shock hazard, overhead power lines—check the area for overhead power lines before operating the machine in the area.
3. Crushing hazard—keep bystanders away when lowering the tank.

decal127-3937

127–3937

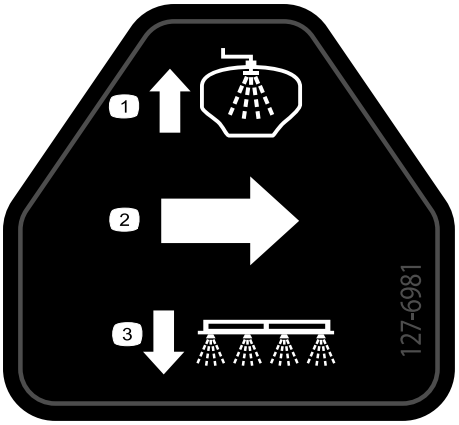
1. Warning—do not step.
2. Warning—keep away from hot surfaces.
3. Entanglement hazard, belt—keep away from moving parts; keep all guards and shields in place.



decal127-6979

127-6979

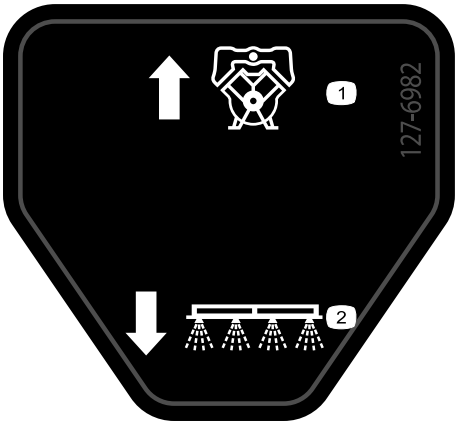
1. Bypass-return flow
2. Flow
3. Agitation flow



decal127-6981

127-6981

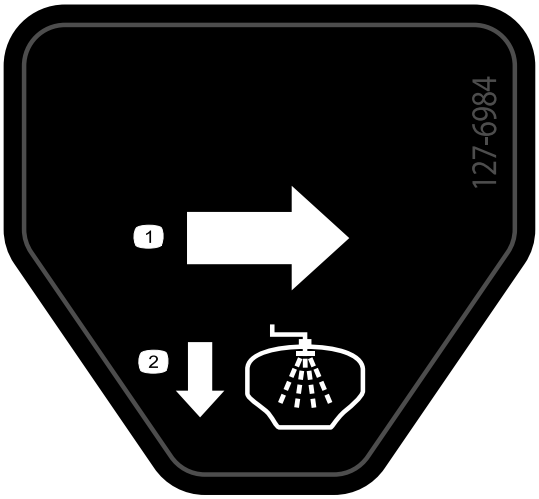
1. Bypass-return flow
2. Flow
3. Boom spray



decal127-6982

127-6982

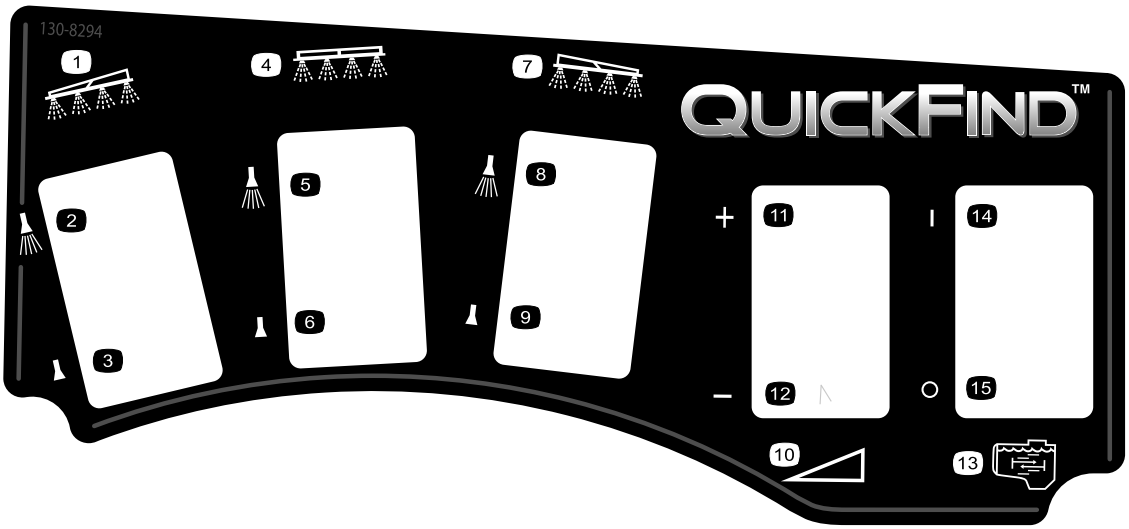
1. Bypass-return flow
2. Boom spray



decal127-6984

127-6984

1. Flow
2. Tank-return flow



decal130-8294

130-8294

1. Left boom
2. Left boom spray on
3. Left boom spray off
4. Center boom
5. Center boom spray on
6. Center boom spray off
7. Right boom
8. Right boom spray on
9. Right boom spray off
10. Speed
11. Increase speed
12. Decrease speed
13. Agitation
14. Agitation on
15. Agitation off

Setup

Loose Parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
1	No parts required	–	Remove the existing bed.
2	Rear PTO Kit, Heavy-Duty Workman Vehicle (HD-Series Models with a Manual Transmission)	1	Prepare to install the center boom section.
	Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle (HD-Series Models with a Manual Transmission)	1	
	Hairpin	1	
	Control console	1	
	Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle (HD-Series Models with a Manual Transmission)	1	
	Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle (HDX-Auto Model)	1	
3	Console mounting bracket	1	Install the console mounting bracket.
	Flange locknut (5/16 inch)	3	
	Flange-head bolt (5/16 inch)	3	
	Plastic bushing	2	
4	Hold-down brackets	2	Install the attachment hold-down brackets.
5	Tank and skid assembly	1	Install the tank skid.
	Clevis pins	2	
	Tapered clevis pin	2	
	Hairpins	2	
	Lynch pins	4	
	Bolt (1/2 x 1-1/2 inches)	2	
	Nuts (1/2 inch)	2	
6	No parts required	–	Connect the speed sensor harness.
7	No parts required	–	Couple the sprayer pump.
8	Knob	1	Install the control console onto the machine.
	J-clips	3	
	Bolt (1/4 x 3/4 inch)	1	
	Flange nut (1/4 inch)	1	
9	Fuse decal (127–3966)	1	Install the control console and the electrical harness.
10	Battery terminal bolt	1	Connect the sprayer harness to the battery.
	Clamp nut	2	
	Cover (battery terminal—red)	1	
11	Bolt (1/2 x 1-1/2 inch	2	Lower the tank skid.
	Locknut (1/2 inch)	2	

Procedure	Description	Qty.	Use
12	Center-boom assembly Bolt (3/8 x 1 inch) Flanged locknut (3/8 inch) Boom-transport cradle Bolt (1/2 x 1-1/4 inches) Flange nut (1/2 inch)	1 10 10 2 4 4	Install the boom section.
13	Left boom section Right boom section Flanged-head bolts (3/8 x 1-1/4 inch) Backing plates Flanged locknuts (3/8 inch) Clevis pin Hairpin	1 1 8 8 8 2 2	Install the left and right boom sections.
14	Hose clamps R-clamp Shoulder bolt Washer Nut	3 2 2 2 2	Install the boom hoses.
16	Support tube (fresh water tank) Jam nut (3/8 inch) Bolt (3/8 x 1 inch) Shoulder bolt Locknut (3/8 inch) Fresh-water tank Fresh-water tank mount Flanged locknut (5/16 inch) Washer (5/16 inch) Flanged-head bolt (5/16 x 2-1/4 inch) Flanged-head bolt (5/16 x 5/8 inch)	1 1 1 2 2 1 1 2 2 2 4	Install the fresh-water tank.
17	Fill receptacle assembly Flange-head bolt (5/16 x 3/4 inch)	1 1	Install the anti-siphon fill receptacle.
18	No parts required	–	Check the boom hinge springs.
19	Front jack stand Rear jack stand Cotter pin Clevis pin (4-1/2 inch) Clevis pin (3 inch) Knob	2 2 4 2 2 2	Store the jack stands (optional).
20	Operator's Manual Operator training material Parts Catalog Registration card Selection guide Pre-delivery inspection sheet	1 1 1 1 1 1	Read the manuals and view the training material before operating the machine.

Note: Determine the left and right sides of the machine from the normal operating position.

1

Removing the Existing Bed

No Parts Required

Procedure

⚠ CAUTION

The full bed weighs approximately 95 kg (210 lb), so do not try to install or remove it by yourself. Get the help of 2 or 3 other people or use an overhead crane.

1. Ensure that the parking brake is set and start the engine of the machine.
2. Move the hydraulic lift lever forward and lower the bed until the clevis pins for the cylinder rod end lift cylinders are loose in the mounting slots of the bed mounting plates.
3. Release the hydraulic lift lever, set the hydraulic lift lock lever, and shut off the engine; refer to the *Operator's Manual* of your machine.
4. Remove the lynch pins from the outer ends of the cylinder rod clevis pins (Figure 3).

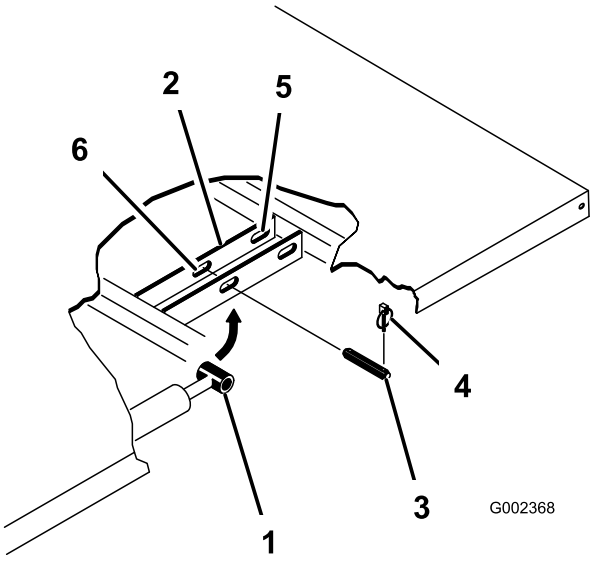


Figure 3

1. Cylinder rod end
2. Bed mounting plate
3. Clevis pin
4. Lynch pin
5. Rear slots (Full bed)
6. Front slots (2/3 bed)

5. Remove the clevis pins securing the cylinder rod ends to the bed mounting plates by pushing the pins toward the centerline of the machine(Figure 3).
6. Remove the lynch pins and clevis pins securing the pivot brackets of the bed to the frame channels of the machine (Figure 4).

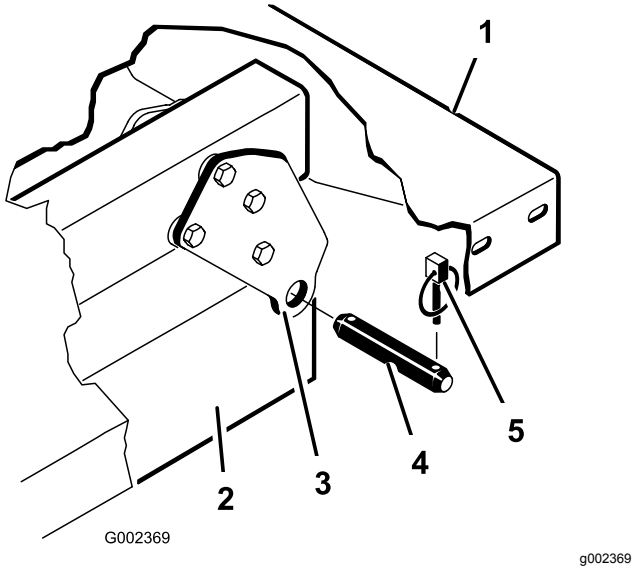


Figure 4

1. Left rear corner of bed
2. Vehicle frame channel
3. Pivot plate
4. Clevis pin
5. Lynch pin

7. Lift the bed off the vehicle.
8. Stow the lift cylinders in storage clips.

2

Preparing to Install the Tank Skid

Parts needed for this procedure:

1	Rear PTO Kit, Heavy-Duty Workman Vehicle (HD-Series Models with a Manual Transmission)
1	Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle (HD-Series Models with a Manual Transmission)
1	Hairpin
1	Control console
1	Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle (HD-Series Models with a Manual Transmission)
1	Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle (HDX-Auto Model)

Installing the Rear PTO Kit for Heavy Duty Workman Vehicles (HD-Series Models with a Manual Transmission)

For HD- and HDX-Series Workman models with a manual transmission, fully install the Rear PTO Kit for Heavy-Duty Workman Vehicles; refer to the *Installation Instructions* for the Rear PTO Kit for Heavy Duty Workman Vehicles.

High-Flow Hydraulics Kit, Workman HDX-Auto Utility Vehicle (Non-TC—HDX-Auto Model)

Fully install the High-Flow Hydraulics Kit for Workman HDX-Auto Utility Vehicles; refer to the *Installation Instructions* for the High-Flow Hydraulics Kit, Workman HDX-Auto Utility Vehicle.

Lifting the Sprayer Skid

Using lifting equipment with a 408 kg (900 lb) lift capacity, lift the tank skid from the shipping crate at the 2 front and 2 rear lift points (Figure 5).

Note: Ensure that the tank skid is raised high enough to install the jackstands.

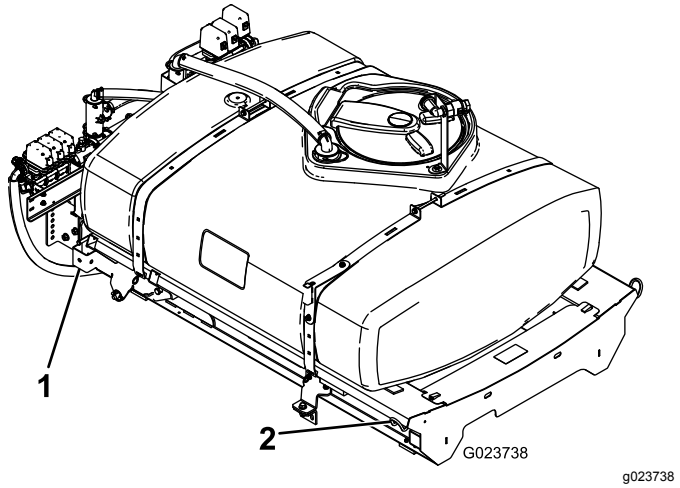


Figure 5

1. Rear lift point
2. Front lift point

Installing the Control Console

Note: This step temporarily mounts the control console to the tank while you assemble the sprayer to the machine. You will complete the installation of the control console in 9 Installing the Sprayer Fuse Block (page 22).

1. Carefully remove the control console from the shipping container
2. Align the pivot pin on the control console with the storage bracket at the front tank strap (Figure 6).

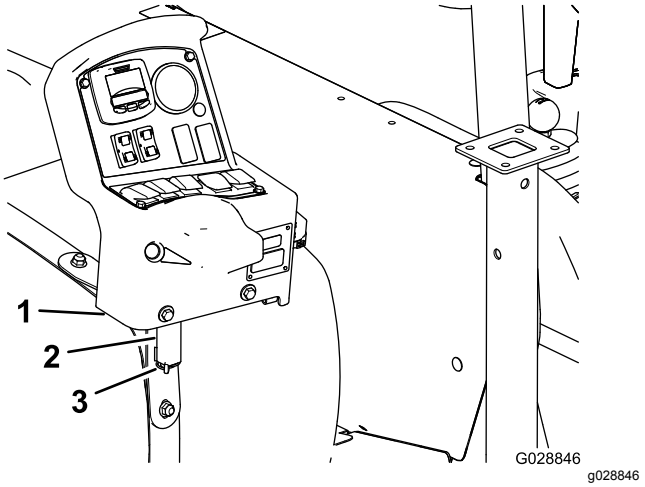


Figure 6

1. Control console
2. Storage bracket (front tank strap)
3. Hairpin

3. Assemble the console to the bracket and secure the pivot pin to the bracket with the hairpin (Figure 6).

Multi Pro Workman Turf Sprayer Finishing Kit (HD-Series Models with a Manual Transmission)

For HD- and HDX-Series Workman models with a manual transmission, complete the steps in the Multi Pro WM Turf Sprayer Finishing Kit for Manual Workman Utility Vehicles; refer to the Installation Instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle.

Multi Pro Workman Turf Sprayer Finishing Kit (HDX-Auto Model)

HDX-Automatic Series Workman models, complete the steps in the Multi Pro WM Turf Sprayer Finishing Kit for Automatic Workman Utility Vehicles; refer to the Installation Instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle.

3

Installing the Console Mounting Bracket

Parts needed for this procedure:

1	Console mounting bracket
3	Flange locknut (5/16 inch)
3	Flange-head bolt (5/16 inch)
2	Plastic bushing

Procedure

Note: On some Workman vehicles, the control mount plate is attached to the dashboard at the same location where the bracket for the optional hand throttle kit is mounted. If the hand throttle kit is installed, you will need to remove the bracket of the hand throttle assembly from the dashboard, align the control mount plate to the dash, and install the hand throttle bracket on top of the control mount plate. Refer to the Hand Throttle Kit *Installation Instructions* for directions on removing and installing the hand throttle assembly.

1. Remove the 3 bolts and 3 nuts that secure the lower-center portion of the dash panel to the dash support bracket (Figure 7).

   Note: Some older Workman machines may use 4 bolts and flange nuts.

   Note: Discard the bolts and nuts.

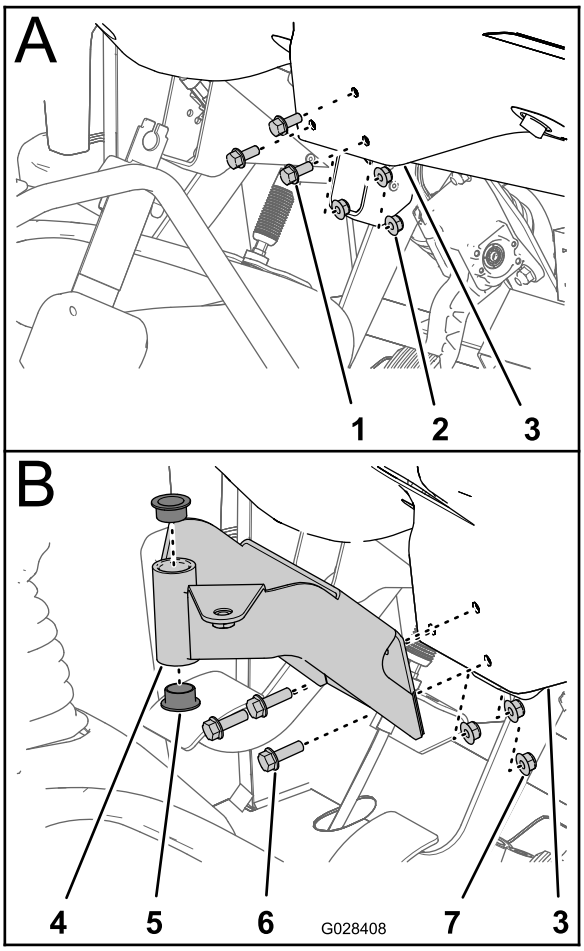


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Figure 7

1. Bolt
2. Nut
3. Cash panel (lower center area)
4. Mounting bracket (control console)
5. Bushing (plastic)
6. Flanged-head bolts (5/16 x 1 inch)
7. Flanged locknuts (5/16 inch)

2. Align the holes in the mounting bracket for the control console with the holes in the dash and support bracket (Figure 7).
3. Assemble the mounting bracket dash panel and support bracket with the 3 flanged-head bolts (5/16 x 1 inch) and 3 flanged locknuts (5/16 inch)
4. Torque the nuts and bolts to (Figure 7).
5. Insert the 2 plastic bushings into the mounting bracket (Figure 7).

4

Installing the Hold-down Brackets for the Tank Skid

Parts needed for this procedure:

2	Hold-down brackets

Procedure

1. Remove the 2 rear flanged-head bolts and 2 flanged locknuts that secure the support bracket for the engine tube to the frame of the machine (Figure 8).

   Note: Retain the fasteners for later use.

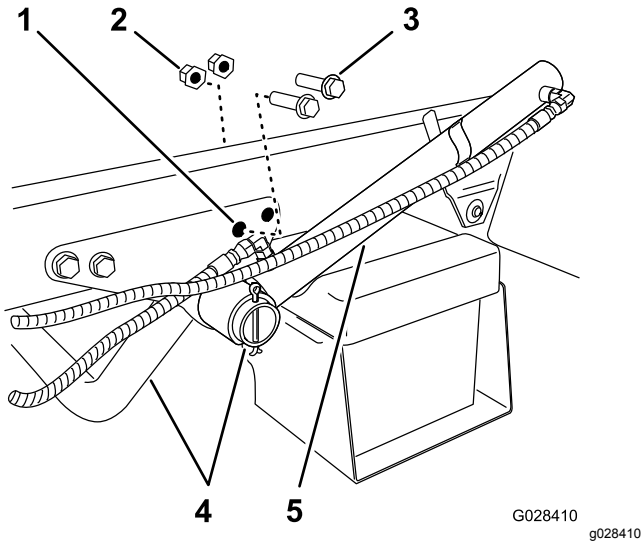

Figure 8

1. Rear hole—support bracket (engine tube)
2. Flanged locknut
3. Flanged-head bolt
4. Engine support tube
5. Lift cylinder

2. Rotate the lift cylinder to provide clearance to install the hold-down bracket for the tank skid (Figure 8).
3. Assemble the hold-down brackets to support bracket and frame the using the 2 flanged-head bolt and flange locknut removed in step 1 (Figure 9).

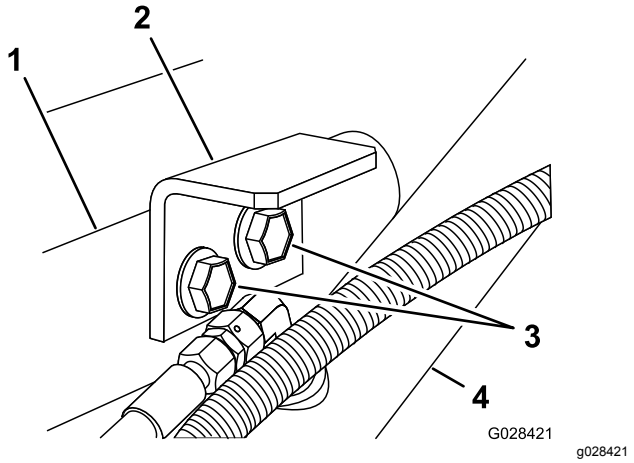

Figure 9

1. Support bracket (engine tube)
2. Hold-down bracket (tank skid)
3. Flanged-head bolts
4. Lift cylinder

4. Torque the bolts and nuts to 91 to 113 N-m (67 to 83 ft-lb).
5. Repeat steps 1 to 4 at the opposite side of the machine.

5

Installing the Tank Skid

Parts needed for this procedure:

1	Tank and skid assembly
2	Clevis pins
2	Tapered clevis pin
2	Hairpins
4	Lynch pins
2	Bolt (1/2 x 1-1/2 inches)
2	Nuts (1/2 inch)

Procedure

⚠ DANGER

The sprayer tank assembly represents a stored energy hazard. If not properly retained when installing or removing the assembly, it can move or fall and injure you or other bystanders.

Use straps and an overhead lift to support the sprayer tank assembly during installation, removal, or any maintenance when the retaining fasteners are being removed.

1. Using a lift, raise the tank skid assembly (Figure 10) and position it over the vehicle frame with the pump and valve assemblies facing rearward.

   Note: Have another person help you perform the following steps.

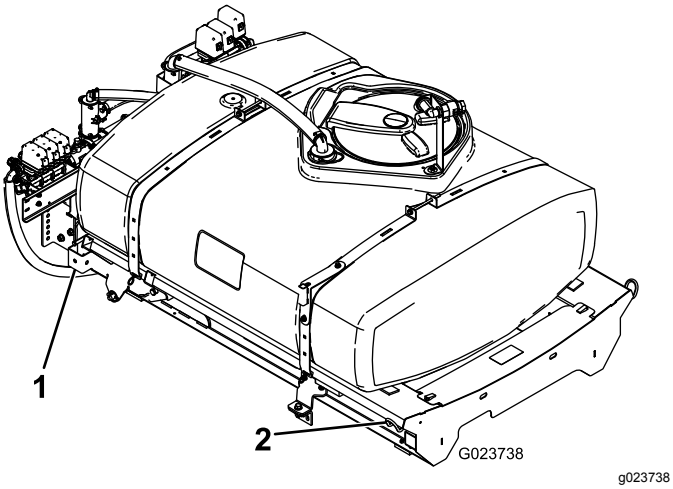

Figure 10

1. Rear lift point
2. Front lift point

2. Position the drain valve as follows:

   A. At the left side of the tank, loosen the 2 flanged-head bolts that secure the drain valve to the valve-support bracket (Figure 11).

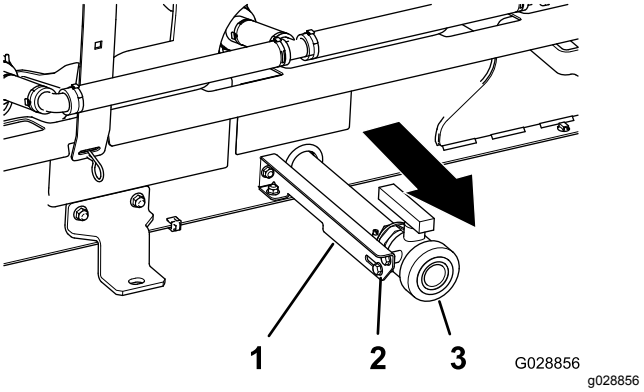

Figure 11

1. Valve-support bracket
2. Flanged-head bolt
3. Drain valve

   B. Move the drain valve fully outward in the slots of the bracket (Figure 11).

   Note: Ensure that the drain hose at the inboard side of the sprayer skid is not kinked.

   C. Tighten 2 flanged head bolts (Figure 11).

3. Slowly lower the tank skid onto the frame of the machine.
4. Extend the lift cylinders to the brackets on the tank skid, and align the cylinder fittings with the holes in the tank skid brackets (Figure 12).

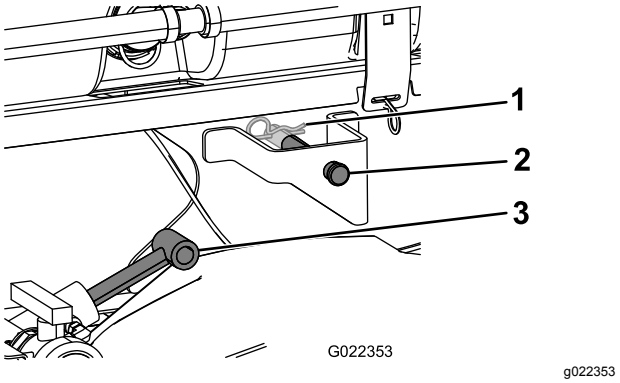

Figure 12

1. Hairpin
2. Clevis pin
3. Lift cylinders

5. Secure the tank skid to the lift cylinders with the clevis pins and hairpins at both sides of the machine.
6. Line up the holes in the pivot lugs at the rear of the tank skid assembly with the holes in the

bed pivot tube at the end of the vehicle frame (Figure 13).

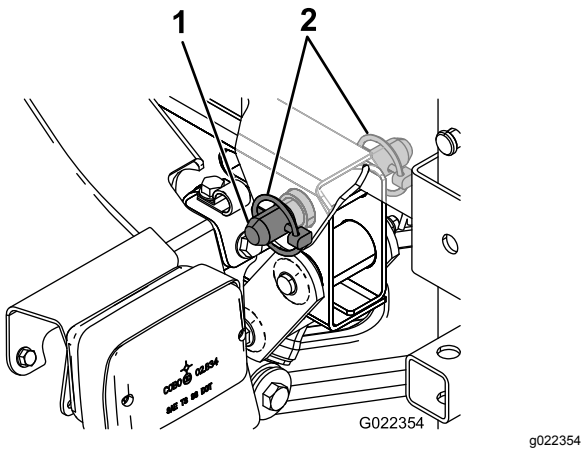

Figure 13

1. Tapered clevis pin
2. Lynch pin

7. Install a tapered clevis pin and 2 lynch pins to the pivot lug to secure the tank assembly to the frame (Figure 13).
8. Extend the lift cylinders to raise the tank and support its weight.

   Note: Disconnect the tank assembly from the lifting equipment.
9. Remove the bed support from the storage brackets on back of the ROPS panel (Figure 14).

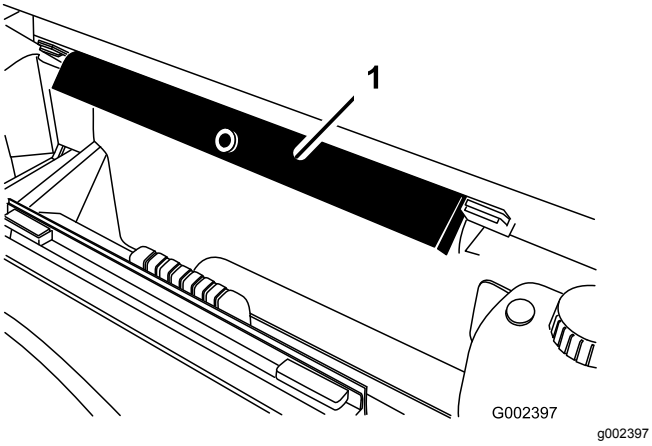

Figure 14

1. Bed support

10. Push the bed support onto the cylinder rod, making sure that the support end tabs rest on the end of cylinder barrel and on the cylinder rod end (Figure 15).

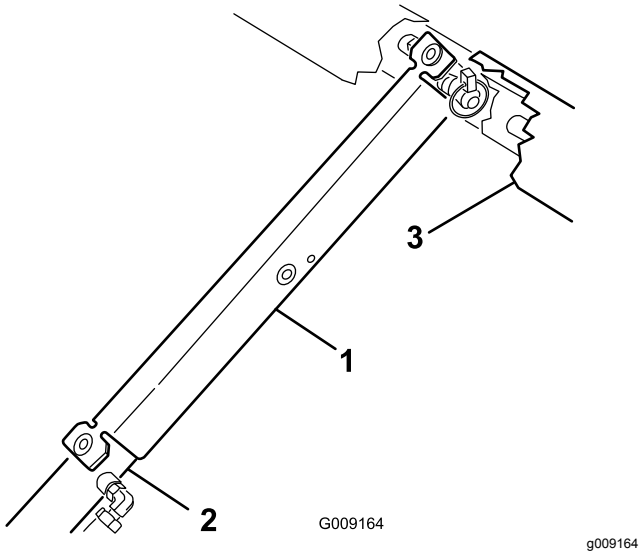

Figure 15

1. Bed support
2. Lift cylinder
3. Skid frame

6

Connecting the Speed Sensor Harness

No Parts Required

Connecting the Speed Sensor Harness (HD-Series Models with a Manual Transmission)

1. At the wiring harness for the sprayer, locate the 3-socket connector for the speed sensor circuit and the 3-pin connector for the vehicle circuit.
2. At the transaxle of the machine, connect the 3-pin connector of the wiring harness of the machine for speed sensor into the 3-socket connector of the sprayer harness for the speed sensor (Figure 16).

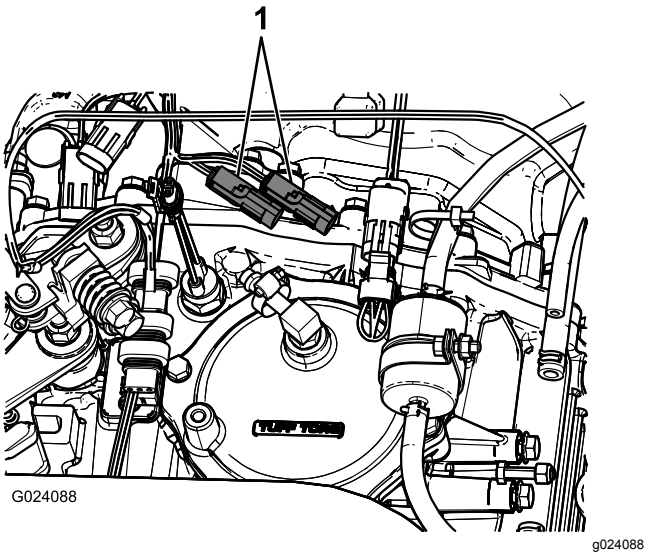

Figure 16

1. Existing speed sensor plugs

3. Connect the 3-pin connector for the vehicle circuit of the wiring harness of the sprayer into the 3-pin socket for the vehicle circuit of the wiring harness for the machine.

Connecting the Speed Sensor Harness (HDX-Auto Model)

1. At the wiring harness for the sprayer, locate the 3-socket connector for the speed sensor circuit (Figure 17).

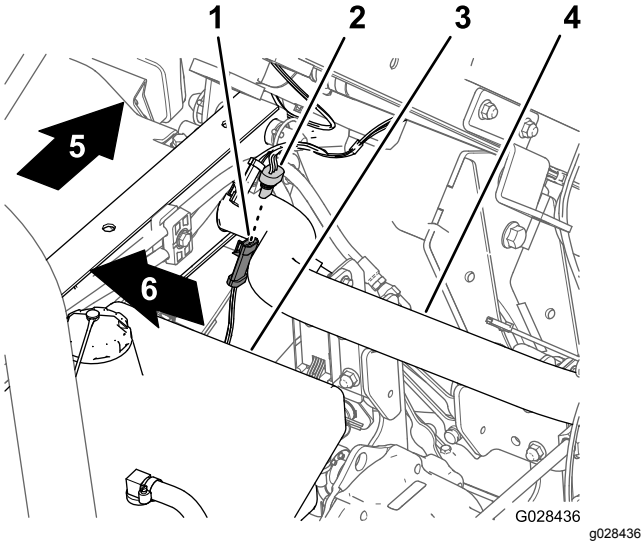

Figure 17

1. 3-pin connector (machine wiring harness—speed sensor)
2. 3-socket connector (sprayer wiring harness—speed sensor)
3. Hydrauliic tank
4. Rear-frame tube
5. Back of the machine
6. Right side of the machine

2. Connect the 3-pin connector of the wiring harness of the machine for speed sensor into the 3-socket connector of the sprayer harness for the speed sensor (Figure 17).

7

Coupling the Sprayer Pump

No Parts Required

Procedure

- For HD-series models with a manual transmission, couple the PTO shaft to the transaxle PTO; refer to the *Installation Instructions* for the Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle.
- For HDX-Auto model—connect the hydraulic motor hoses to the quick-disconnect fittings at the high-flow hydraulic panel; refer to the *Installation Instructions* for the Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle.

8

Installing the Control Console and Electrical Harness

Parts needed for this procedure:

1	Knob
3	J-clips
1	Bolt (1/4 x 3/4 inch)
1	Flange nut (1/4 inch)

Installing the Control Console to the Machine

1. Remove the hairpin securing the pivot pin of the control console to the storage bracket on the sprayer tank.
2. Install the control console onto the control mounting bracket and secure the control console with the previously removed hairpin (Figure 18).

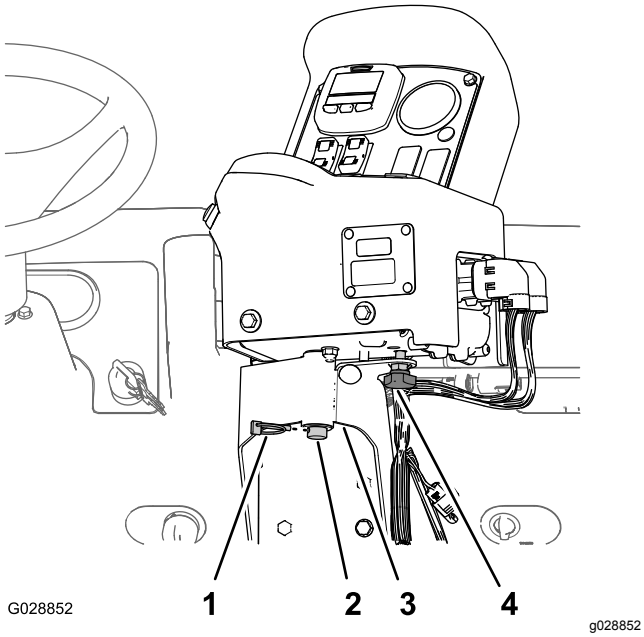

Figure 18

1. Hairpin
2. Pivot pin (control console)
3. Control mounting bracket
4. Hand knob

3. Install the hand knob and tighten it to prevent the console from rotating during operation (Figure 18).

Installing the Control Console Electrical Harness to the Machine

1. Install 2 J-clips in the center console at the points located in Figure 19 or Figure 20 using the existing screws.

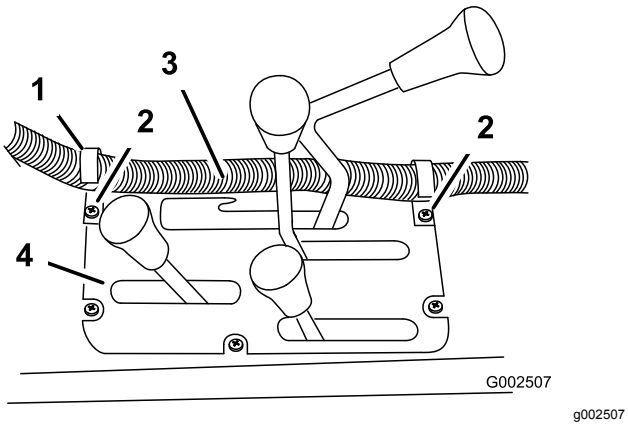

Figure 19

HD-Series models with an manual transmission

1. J-clip
2. Existing screws
3. Control-box harness
4. Center console

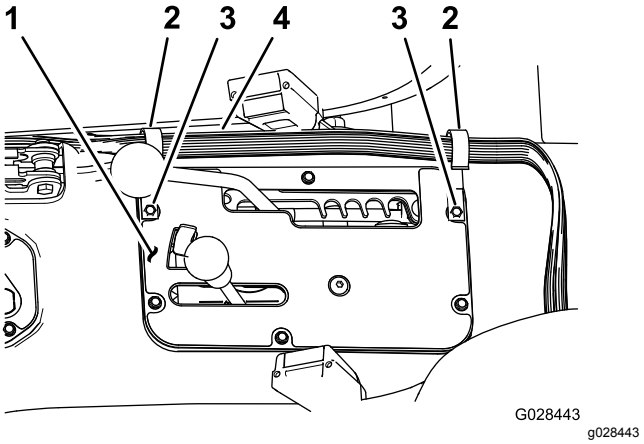

Figure 20

HDX-Auto Model

1. Center console
2. J-clip
3. Existing screws
4. Control-box harness

2. Install a J-clip behind the passenger seat using a bolt (1/4 x 1/2 inch) and a flanged nut (1/4 inch) (Figure 21).

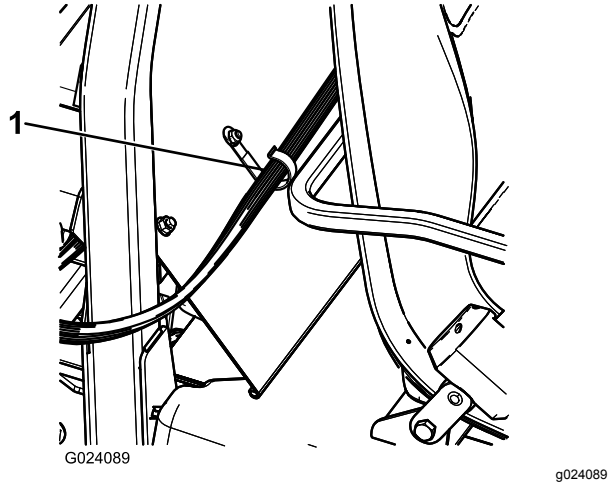

Figure 21

1. J-clip

3. Secure the control console harness to the console and ROPS cover using the J-clips (Figure 21).

9

Installing the Sprayer Fuse Block

Parts needed for this procedure:

1	Fuse decal (127–3966)

Procedure

1. Squeeze the sides of the battery cover to release the tabs from the slots in the battery base, and remove the battery cover from the battery base (Figure 22).

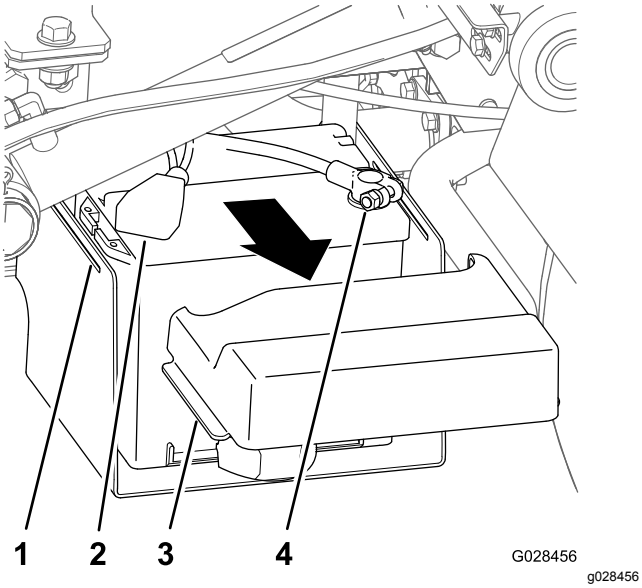

Figure 22

1. Slot (battery base)
2. Cover (negative battery terminal)
3. Tab (battery cover)
4. Terminal (positive battery cable)

2. Slide the cover back and remove the negative battery terminal from the battery (Figure 22).
3. Remove the positive battery terminal from the battery (Figure 22).
4. Locate the uninsulated receptacle terminal at the end of the open, yellow power wire of the fuse block for the machine and the insulated blade terminal at the end of the yellow, optional-power wire of the fuse block of the sprayer wiring (Figure 23).

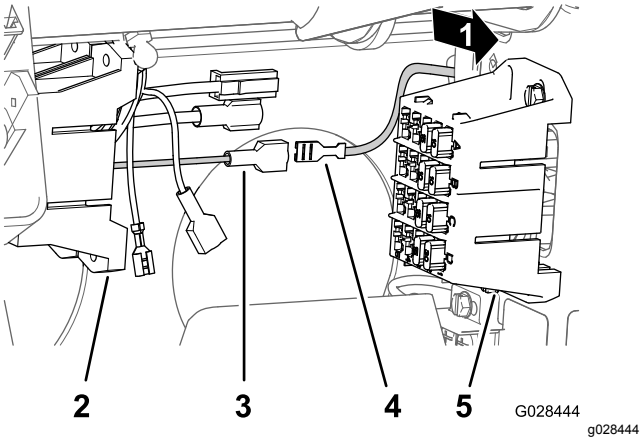

Figure 23

1. Back of the machine
2. Fuse block (sprayer wiring)
3. Insulated blade terminal(yellow, optional-power wire—machine fuse block)
4. Uninsulated receptacle terminal (yellow power wire—sprayer fuse block)
5. Fuse block (machine wiring)

5. Connect the uninsulated receptacle terminal of the fuse block for the machine to the insulated blade terminal of the fuse block of the sprayer (Figure 23).
6. Align the T-fittings on the of the fuse block of the sprayer to the T-slots of the fuse block for the machine and slide the sprayer fuse block into the slots until the fuse block is fully seated (Figure 24).

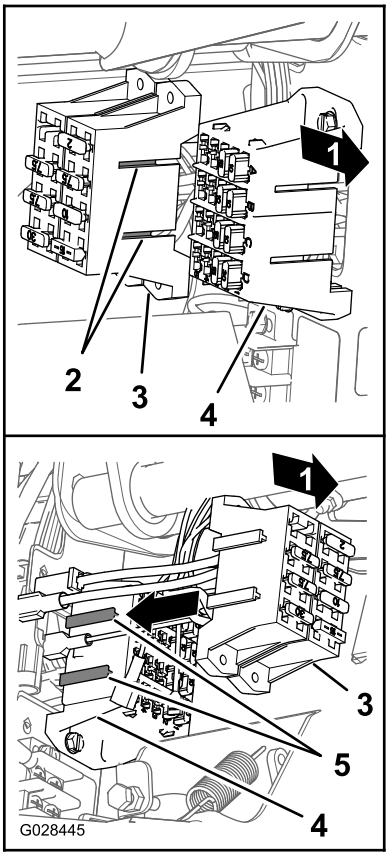

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Figure 24

1. Back of the machine
2. T-fittings (fuse block for the sprayer)
3. Fuse block for the sprayer
4. T-slots (fuse block for the machine)
5. Fuse block of the machine

7. Attach the fuse decal on a surface nearby the fuse block for the sprayer.

10

Connecting the Sprayer Harness to the Battery

Parts needed for this procedure:

1	Battery terminal bolt
2	Clamp nut
1	Cover (battery terminal—red)

Procedure

1. Remove the existing nut and T-bolt and from the positive battery terminal (A of Figure 25).

   Note: Discard the T-bolt an nut.

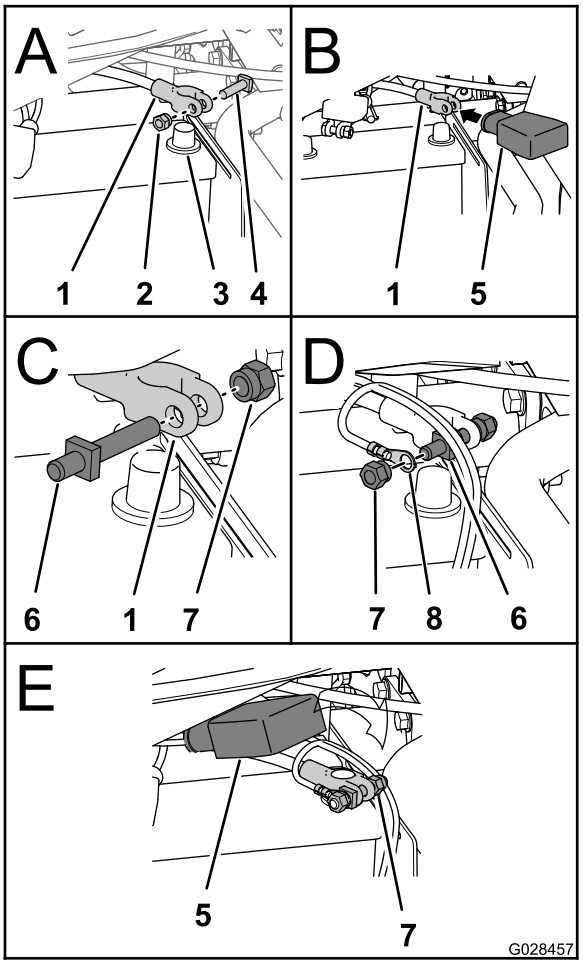

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Figure 25

1. Terminal (positive battery cable)
2. Nut
3. Positive battery post
4. T-bolt
5. Cover (battery terminal—red)
6. Terminal bolt
7. Clamp nut

2. Slip the red battery terminal cover over the positive battery cable (B of Figure 25).
3. Assemble the new battery terminal bolt and 1 clamp nut onto the terminal of the positive battery cable (C of Figure 25).
4. Install the terminal of the battery lead from the sprayer wiring harness onto the battery terminal bolt and secure the terminal with 1 clamp nut (D of Figure 25).

   Note: Align the battery lead along positive battery cable. Tighten the clamp nut and bolt to 1978 to 2542 N-cm (175 to 225 in-lb).
5. Connect the positive battery terminal to the positive battery post and tighten the clamp nut to 1978 to 2542 N-cm (175 to 225 in-lb).
6. Connect the negative battery terminal to the negative battery post (E of Figure 25) and tighten the clamp nut to 1978 to 2542 N-cm (175 to 225 in-lb).
7. Slide the cover over the for the positive battery terminals.
8. Squeeze the sides of the battery cover and insert tabs into the slots in the battery base.

11

Lowering the Tank Skid

Parts needed for this procedure:

2	Bolt (1/2 x 1-1/2 inch
2	Locknut (1/2 inch)

Procedure

1. Start the machine and raise the tank skid slightly with the lift cylinders.
2. Remove the cylinder lock from the lift cylinder and stow the lock in the storage brackets at the back of the ROPS panel (Figure 14 and Figure 15)
3. Use lift cylinders to slowly lower the tank to the frame.

   Note: Have another person observe the tank skid as it lowers. Look for hoses and wiring that might become pinched or bent.
4. Check the alignment of the tank skid to the frame of the machine.
5. Remove the access panels at both sides of the skid frame. (Figure 26).

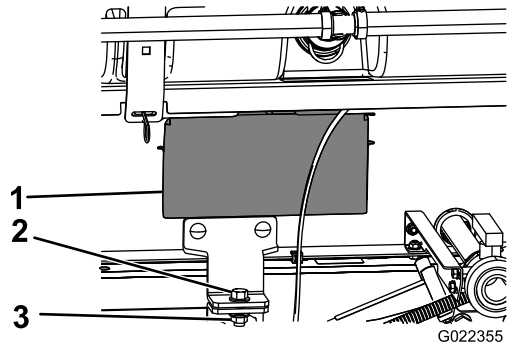

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Figure 26

1. Access panel door
2. Bolt (1/2 x 1-1/2 inch
3. Locknut (1/2 inch)

6. Check the hoses or wiring that you can see through the opening in the skid frame for signs of pinching or bending.

Important: **If any hoses or wiring on the tank skid assembly are pinched or bent, raise the assembly up, adjust its positioning, and tie the items back.**

7. Align the front mounting brackets with the hold-down brackets installed in 4 Installing the Hold-down Brackets for the Tank Skid (page 17).
8. Secure the hold down bracket of the tank skid assembly to the bed bracket on the frame at each side of the machine with a bolt (1/2 x 1-1/2 inches) and a locknut (1/2 inch) as shown in Figure 26.
9. Torque the bolt and locknut to 91 to 113 N-m (67 to 83 ft-lb)
10. Repeat steps 7 through 9 at the other side of the tank skid and machine.

12

Installing the Center Boom Section

Parts needed for this procedure:

1	Center-boom assembly
10	Bolt (3/8 x 1 inch)
10	Flanged locknut (3/8 inch)
2	Boom-transport cradle
4	Bolt (1/2 x 1-1/4 inches)
4	Flange nut (1/2 inch)

Assembling the Boom Transport Cradles

1. Attach lifting equipment to the center boom section and remove it from the shipping container.
2. Align the boom transport cradles to the center boom section (Figure 27).

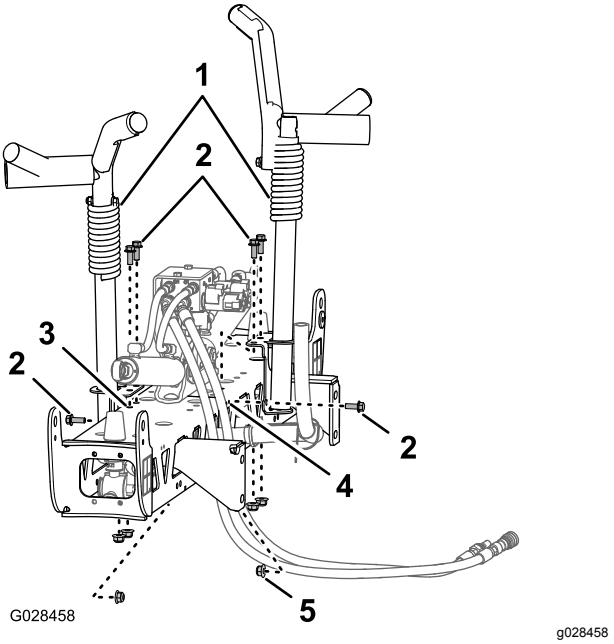

Figure 27

1. Boom-transport cradle
2. Bolts (3/8 x 1 inch)
3. Vertical holes (boom center section)
4. Horizontal hole (boom center section)
5. Flanged locknut (3/8 inch)

3. Assemble the cradles to the boom section (Figure 27 and Figure 28) with 6 bolts (3/8 x 1 inch) and 6 flanged locknuts (3/8 inch).

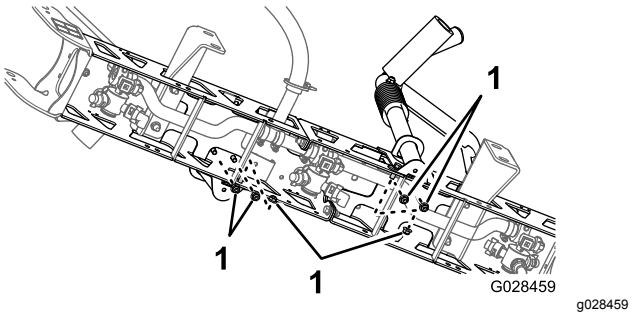

Figure 28

1. Locknuts (3/8 inch)

4. Torque the bolts and nuts to 37 to 45 N-m (27 to 33 ft-lb).

Installing the Center Boom Section to the Tank Skid

1. Start the machine, remove the bed support from the lift cylinder and stow the support, lower the tank skid, shutoff the machine, and remove the key from the STARTER switch.
2. Align the bottom hole in the section mounting brackets of the center boom assembly with the

third hole from the bottom in the boom supports on the spray skid frame, as shown in Figure 29.

Note: If necessary, loosen the boom supports and adjusted them to the center boom section for better hole alignment. Torque the bolts and nuts to 67 to 83 N-m (91 to 113 ft-lb).

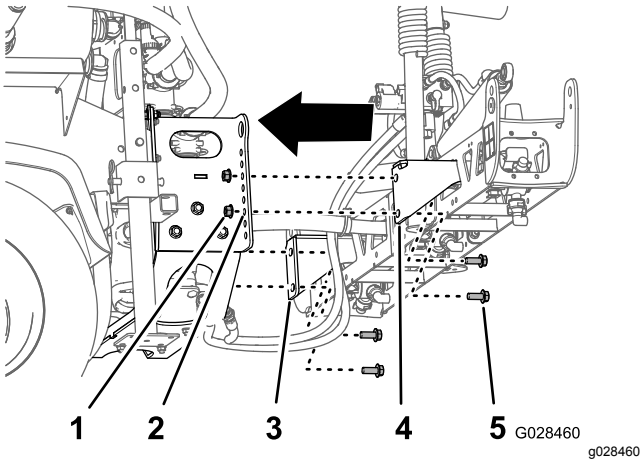

Figure 29

1. Locknut (1/2 inch)
2. Hole 3—from the bottom (boom support)
3. Section mounting bracket (left)
4. Section mounting bracket (right)
5. Bolt (1/2 x 1-1/4 inches)

3. Assemble the center boom assembly to the spray skid frame with 4 bolts (1/2 x 1-1/4 inches) and 4 locknuts (1/2 inch).
4. Torque the bolts and nuts to 67 to 83 N-m (91 to 113 ft-lb).

Connecting the Hoses and Wiring for the Boom Lift Valve

- For HD-Series Models with a Manual Transmission, refer to the installation instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle.
- For HDX-Auto Model, refer to the installation instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle.

13

Installing the Left and Right Boom Section

Parts needed for this procedure:

1	Left boom section
1	Right boom section
8	Flanged-head bolts (3/8 x 1-1/4 inch)
8	Backing plates
8	Flanged locknuts (3/8 inch)
2	Clevis pin
2	Hairpin

Procedure

Each boom section weighs approximately 30 lb.

1. Remove the 4 flanged-head bolts (3/8 x 1-1/4 inch), 4 backing plates, and 4 flanged locknuts (3/8 inch) from the hinge bracket of the center-boom section.
2. Rotate each pivot bracket at the end of the center boom section so that the brackets align vertically (Figure 30).

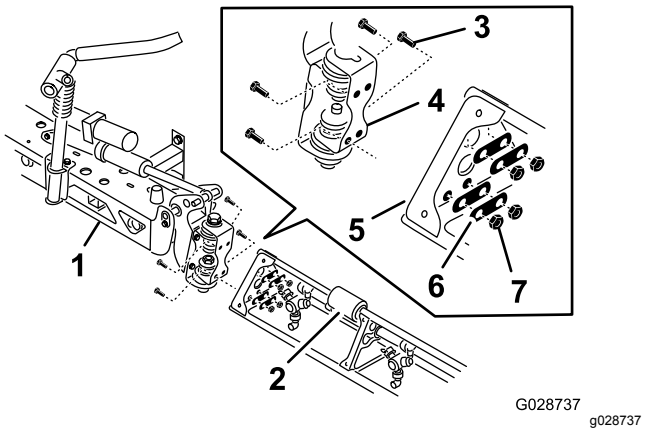

Figure 30

1. Center-boom section
2. Boom extension
3. Hinge plate
4. Flanged-head bolts (3/8 x 1-1/4 inch)
5. Triangular mounting plate
6. Backing plates
7. Flanged locknuts (3/8 inch)

3. Lift the outer-boom section and align holes in the triangular mounting plate at the end of the outer-boom section with the holes in the pivot bracket.

Note: Ensure that the turrets for the sprayer nozzles are facing rearward.

4. Assemble hinge plate to the triangular plate using 4 flanged-head bolts, 4 backing plates, and 4 flanged locknuts, that you removed in step 1, as shown in Figure 30.
5. Torque the nuts bolts and nuts to 37 to 45 N-m (27 to 33 ft-lb).
6. Align the rod end of the boom lift cylinder with the holes in the horn of the pivot bracket (Figure 30).

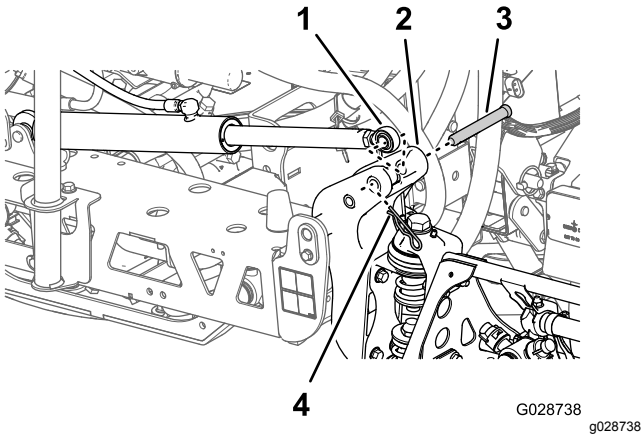

Figure 31

1. Rod end (boom lift cylinder))
2. Horn (pivot bracket)
3. Clevis pin (5/8 x 4-3/4 inch)
4. Hairpin

7. Secure the rod end to the pivot bracket with a clevis pin and a hairpin (Figure 30).
8. Repeat step 1 through 5 on the other side of the center-boom assembly with the opposing boom section.

Note: Before you finish this procedure, ensure that all of turrets for the spray nozzles are facing rearward.

14

Installing the Boom Hoses

Parts needed for this procedure:

3	Hose clamps
2	R-clamp
2	Shoulder bolt
2	Washer
2	Nut

Installing the Left and Right Boom Section Hoses

1. Route the boom-section hoses as shown in Figure 32 and Figure 33.

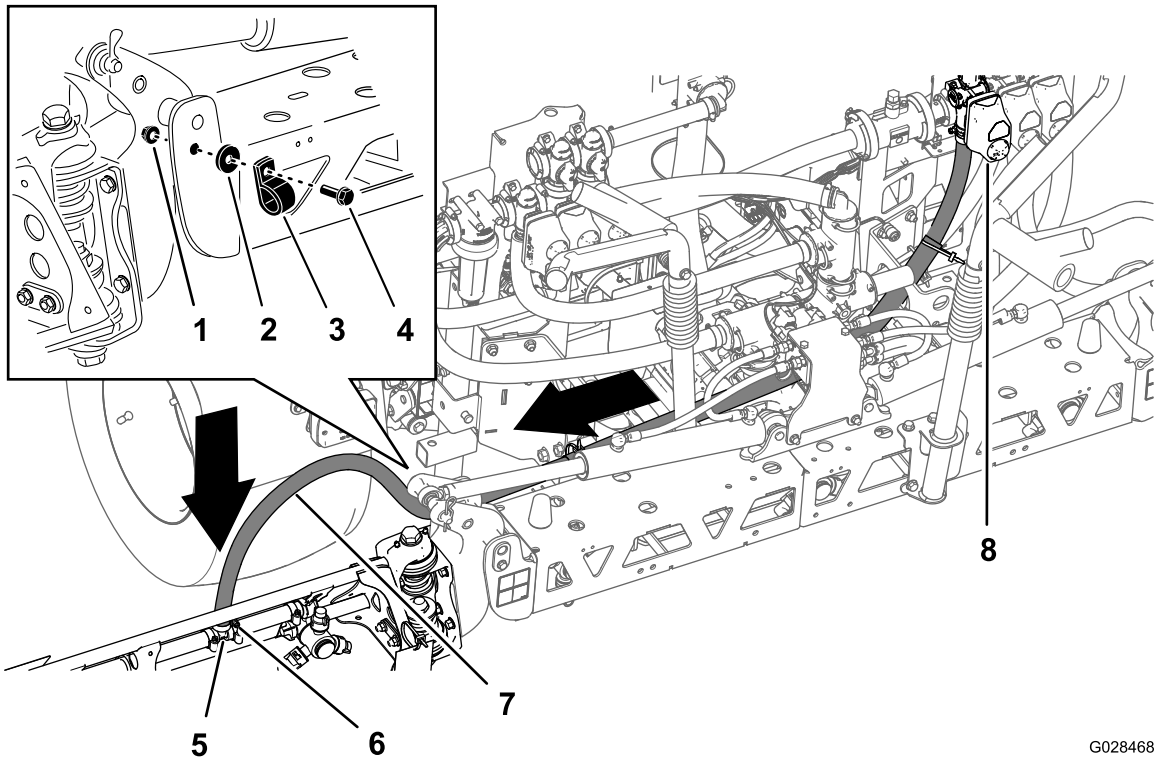

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Figure 32

Hose—Left Boom Segment

1. Nut
2. Washer
3. R-clamp
4. Shoulder bolt
5. T-fitting
6. Hose clamp
7. Left-boom hose
8. Left-section valve

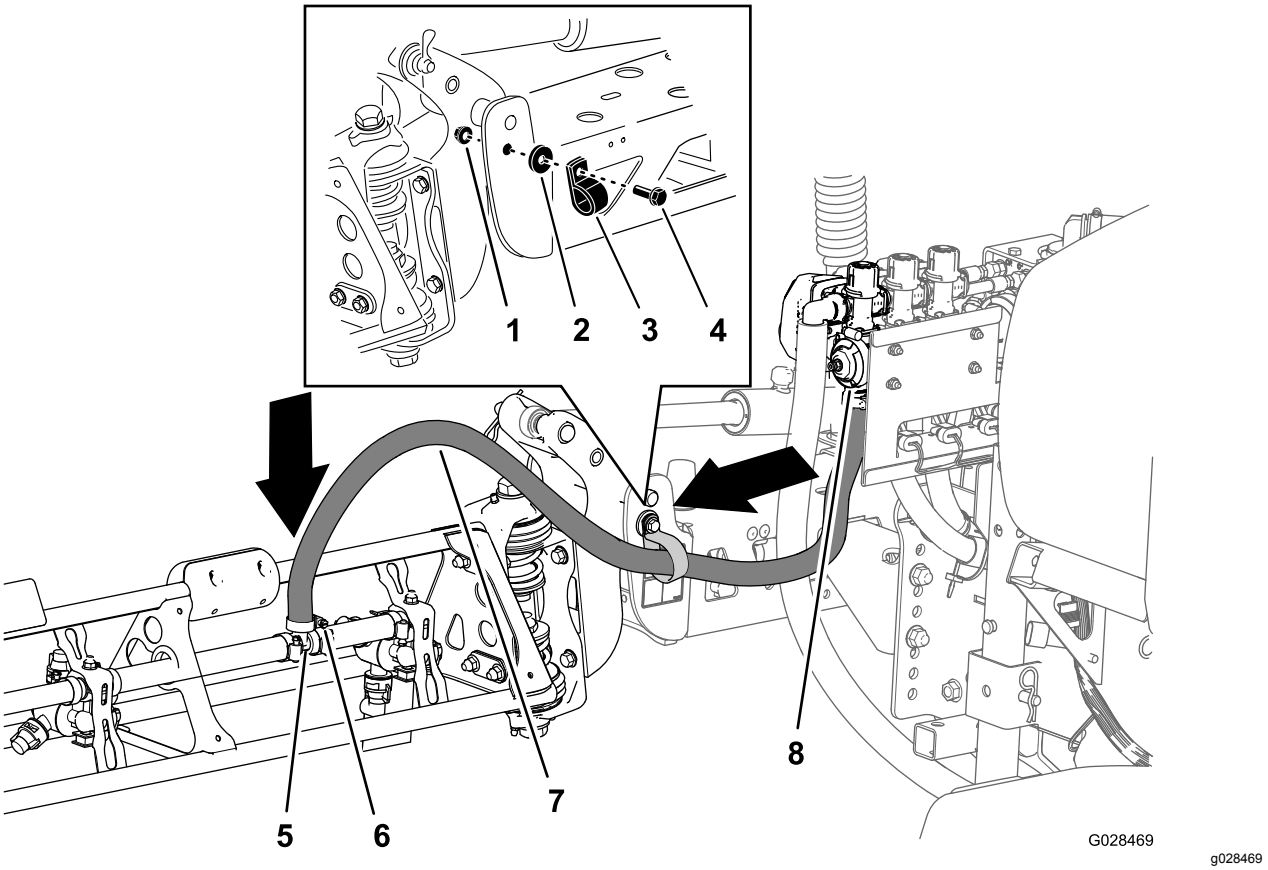

Figure 33
Hose—Right Boom Segment

1. Nut
2. Washer
3. R-clamp
4. Shoulder bolt
5. T-fitting
6. Hose clamp
7. Right-boom hose
8. Right-section valve

2. Secure the boom hoses to the front side of the center boom section (Figure 32 and Figure 33) with 1 R-clamp, 1 shouldered bolt (5/16 x 1 inch), 1 locknut (5/16 inch) and 1 washer (5/16 inch).
3. Install the boom section hose over the barbed T-fitting at the boom section and secure the hose with a hose clamp (Figure 32 and Figure 33).

   Note: Apply a coat of liquid soap to the hose barb of the tee fitting to ease installation of the hose.
4. Repeat steps 1 through 3 on the hose to the boom section on the other side of the sprayer.

Installing the Center Boom-Section Hose

1. Route the center boom-section hose as shown in Figure 34.

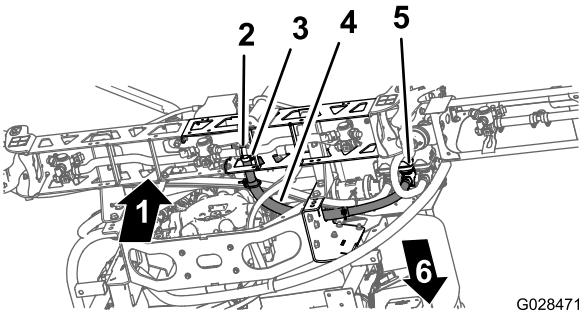

Figure 34

1. Up
2. T-fitting
3. Hose clamp
4. Center-boom hose
5. Center-section valve
6. Front of the machine

2. Install the boom section hose over the barbed T-fitting at the center boom section and secure the hose with a hose clamp (Figure 34).

   Note: Apply a coat of liquid soap to the hose barb of the tee fitting to ease installation of the hose.

15

Installing the Nozzles

No Parts Required

Procedure

The nozzles that you use to apply your chemicals vary depending on the rate of application that you need; therefore, nozzles are not supplied with the kit. To obtain the correct nozzles for your needs, contact your Authorized Toro Distributor and be prepared to give them then following information:

- The target application rate in liters per hectare, US gallons per acre, or US gallons per 1000 sq ft.
- The target speed of the vehicle in kilometers per hour or miles per hour.

To install a nozzle, complete the following:

1. Thread or insert the nozzle into the nozzle receptacle followed by a gasket.
2. Slide the nozzle receptacle over the nozzle fitting on a turret.
3. Turn the nozzle clockwise to lock the cams on the receptacle in place.
4. Verify the fan portion of the nozzle.

See the *Installation Instructions* accompanying the nozzles for more information.

16

Installing the Fresh-Water Tank

Parts needed for this procedure:

1	Support tube (fresh water tank)
1	Jam nut (3/8 inch)
1	Bolt (3/8 x 1 inch)
2	Shoulder bolt
2	Locknut (3/8 inch)
1	Fresh-water tank
1	Fresh-water tank mount
2	Flanged locknut (5/16 inch)
2	Washer (5/16 inch)
2	Flanged-head bolt (5/16 x 2-1/4 inch)
4	Flanged-head bolt (5/16 x 5/8 inch)

Installing the Tank Support Tube

1. Align the support tube for the fresh water tank with the tank support channel (Figure 35).

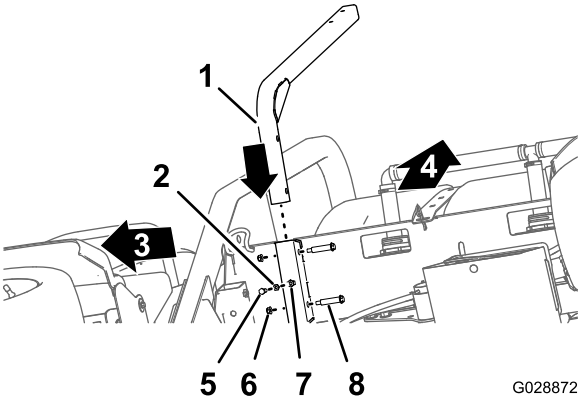

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Figure 35

1. Support tube (fresh water tank)
2. Jam nut (3/8 inch)
3. Front of the machine
4. Up
5. Bolt (3/8 x 1 inch)
6. Locknut (3/8 inch)
7. Weld nut (tank support channel- fresh water
8. Shoulder bolt

2. Align the holes in the support tube with the holes in the channel (Figure 35).
3. Secure the tube to the channel (Figure 35) with the 2 shoulder bolts and 2 locknuts (3/8 inch).

4. Thread the jam nut (3/8 inch) into the bolt (3/8 x 1 inch); refer to Figure 35.
5. Thread the bolt and jam nut into the weld nut at the bottom of the tank support channel and tighten the bolt and jam nut (Figure 35).

Installing the Tank

Note: The fresh-water tank cannot be installed on a 2 post ROPS.

1. Align the holes in the mount for the fresh-water tank with the holes in the support tube (Figure 36).

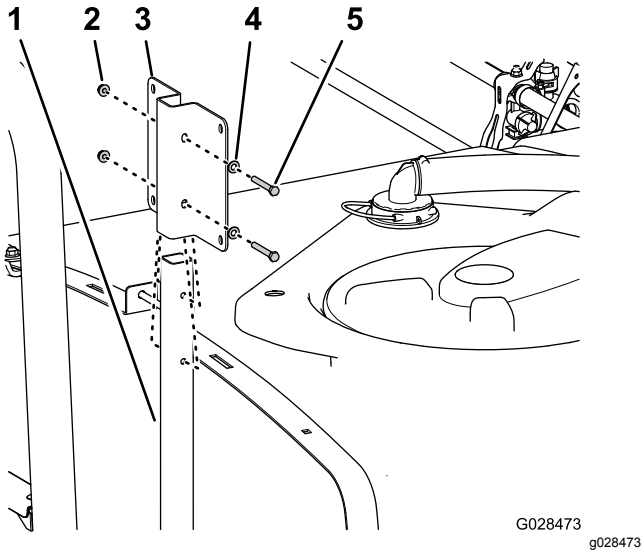

Figure 36

1. Support tube
2. Flanged locknut (5/16 inch)
3. Mount (fresh-water tank)
4. Washer (5/16 inch)
5. Flanged-head bolt (5/16 x 2-1/4 inch)

2. Secure the mount to the tube (Figure 36) with 2 flanged-head bolts (5/16 x 2-1/4 inch), 2 washers (5/16 inch), and 2 flanged locknuts (5/16 inch).
3. Torque the bolts and nuts to 1978 to 2542 N-cm (175 to 225 in-lb).
4. Apply medium-grade thread-locking compound to the 4 flanged-head bolt (5/16 x 5/8 inch).
5. Align the threaded inserts in the fresh water tank with the holes in the fresh-water tank mount (Figure 37).

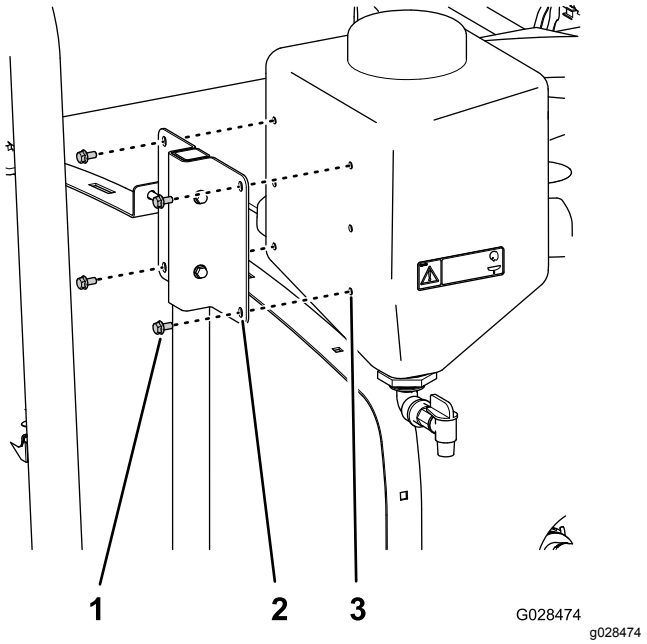

Figure 37

1. Flanged-head bolt (5/16 x 5/8 inch)
2. Hole (fresh-water tank mount)
3. Threaded insert (fresh-water tank)

6. Secure the fresh-water tank to the mount (Figure 37) with 4 flanged-head bolt (5/16 x 5/8 inch).
7. Torque the bolts and nuts to 1978 to 2542 N-cm (175 to 225 in-lb).

17

Installing the Anti-siphon Fill Receptacle

Parts needed for this procedure:

1	Fill receptacle assembly
1	Flange-head bolt (5/16 x 3/4 inch)

Procedure

Place the fill-receptacle assembly over the threaded hole in the tank and secure it with a flange-head bolt (5/16 x 3/4 inch) (Figure 38).

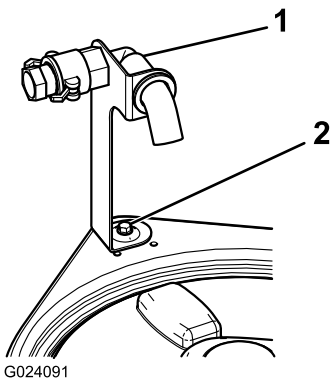

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Figure 38

1. Fill-receptacle assembly
2. Flange bolt (5/16 x 3/4 inch)

18

Checking the Boom Hinge Springs

No Parts Required

Procedure

Important: **Operating the spray system with the boom hinge springs under the incorrect compression could damage the boom assembly. Measure the springs and use the jam nut to compress the springs to 4 cm (1–1/2 inches) if necessary.**

The sprayer is shipped with the boom extensions swung forward to facilitate packaging of the machine. The springs are not fully tightened at the time of manufacture to allow the booms to be in this position for transit. Before operating the machine, adjust the springs to the correct compression.

1. If necessary, remove the packing components that secure the right and left extension booms during shipping.
2. Support the booms while they are extended to the spray position.
3. At the boom hinge, measure the compression of the upper and lower springs while the booms are in their extended position (Figure 39).
   A. Compress all the springs until they measure 4 cm (1–1/2 inches).
   B. Use the jam nut to compress any spring that measures greater than 4 cm (1–1/2 inches).

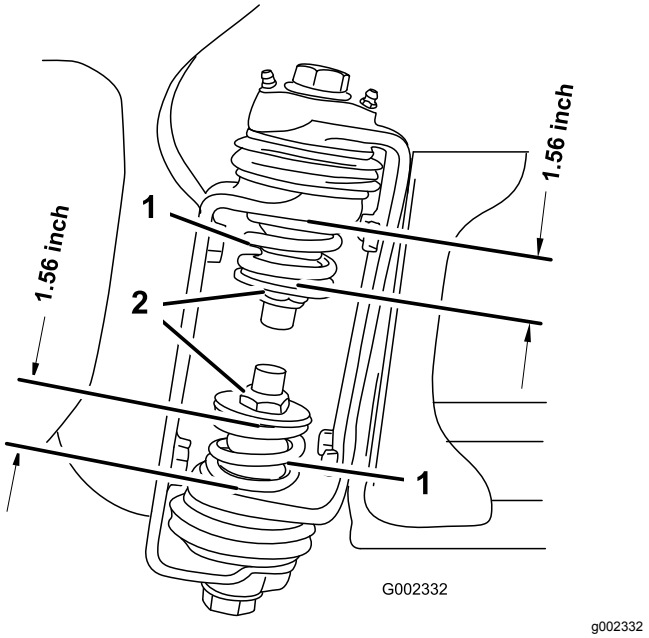

Figure 39

1. Boom hinge spring
2. Jam nut

4. Repeat the procedure for each spring on both boom hinges.
5. Move the booms into the transport “X” position.

   Note: See Using the Boom Transport Cradle (page 50) for more information.

19

Storing the Jack Stands (Optional)

Parts needed for this procedure:

2	Front jack stand
2	Rear jack stand
4	Cotter pin
2	Clevis pin (4-1/2 inch)
2	Clevis pin (3 inch)
2	Knob

Procedure

1. Insert the front jack stands upside down into the frame near the front tie-down points (Figure 40).

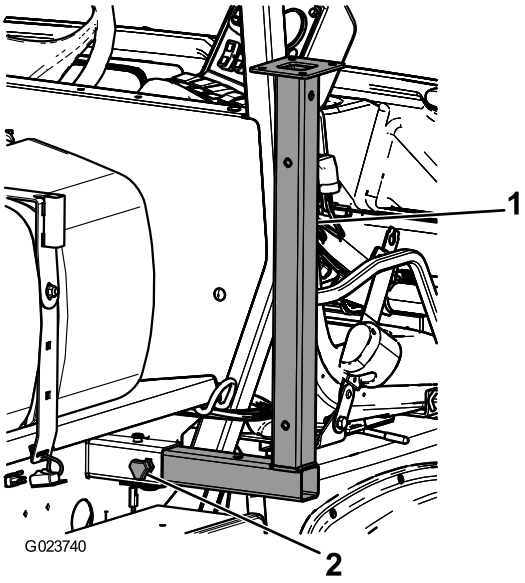

Figure 40

1. Front jack stand
2. Knob

2. Secure the front jack stands with 2 clevis pins (3 inch) and 2 cotter pins through the middle hole on the stands.
3. Insert the rear jack stands from the bottom, up into the frame, near the rear tie-down points (Figure 41).

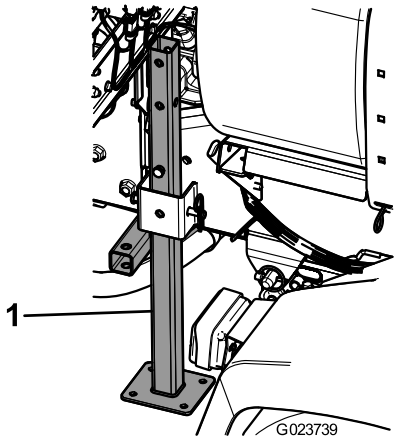

Figure 41

1. Rear jack stand

4. Secure the rear jack stands with 4 clevis pins (4-1/2 inch) and 4 cotter pins through the last hole on the stands.

20

Learning More about Your Product

Parts needed for this procedure:

1	*Operator's Manual*
1	Operator training material
1	*Parts Catalog*
1	Registration card
1	Selection guide
1	Pre-delivery inspection sheet

Procedure

1. Read the manuals.
2. View the operator training material.
3. Use the nozzle selection guide to choose the correct nozzles for your specific application.
4. Store the documentation in a safe place.

Product Overview

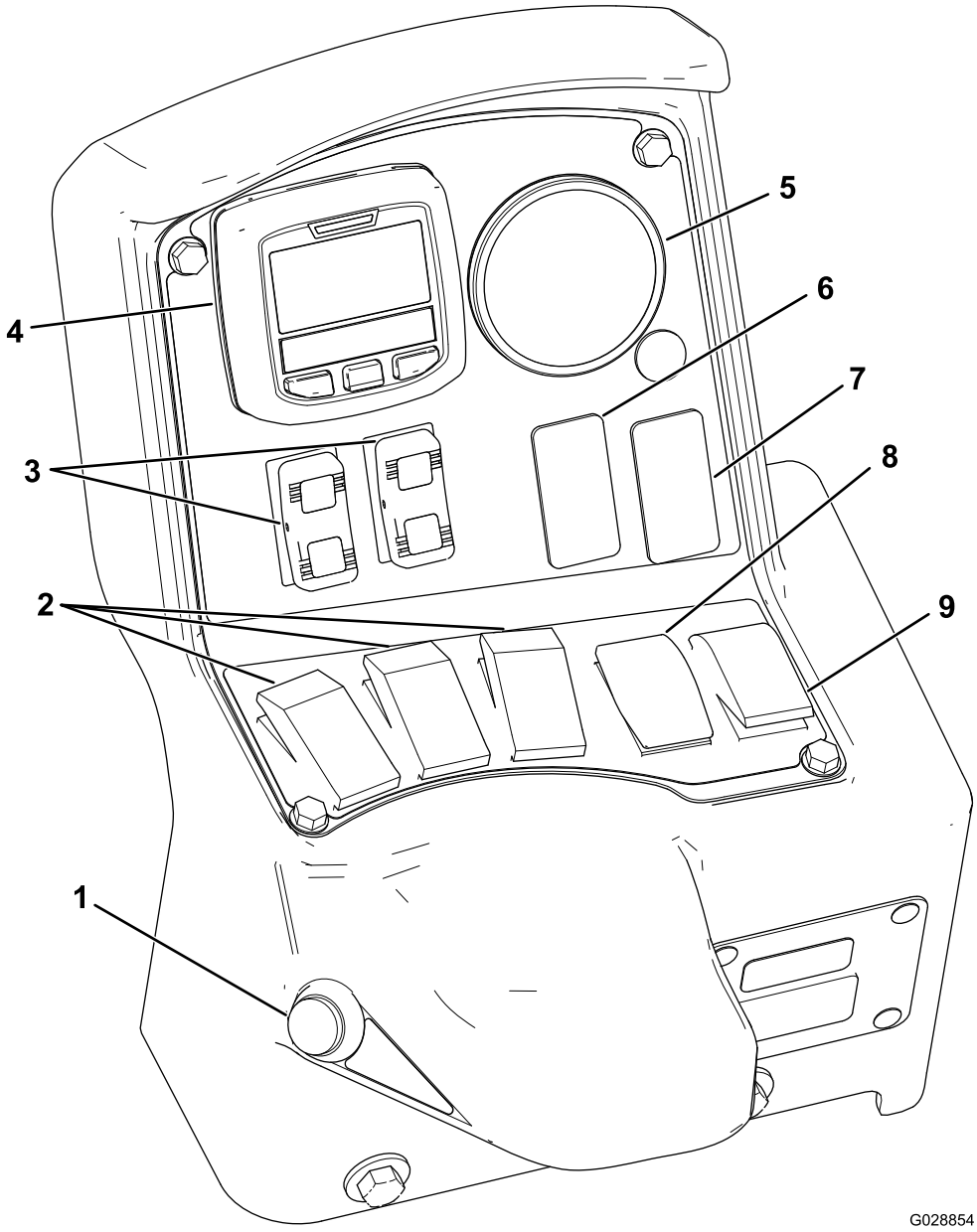

Figure 42

1. Master-boom switch
2. Boom-section switches (sprayer On/Off)
3. Boom lift switches
4. InfoCenter
5. Pressure gauge
6. Rinse switch (optional)
7. Sonic-boom switch (optional)
8. Application-rate switch
9. Agitation switch

Controls

InfoCenter LCD Display

The InfoCenter LCD display shows information about your machine and battery pack such as the current battery charge, the speed, diagnostics information, and more (Figure 42). For more information, refer to Using the InfoCenter (page 39).

Master-Boom Switch

The MASTER-BOOM switch allows you to start or stop the all spray operation. Press the switch to run or stop the spray system (Figure 42).

Boom-Section Switches

The BOOM-SECTION switches are located along the bottom of the control panel (Figure 42). Toggle each switch upward to turn the sprayers for the corresponding boom section on and downward to turn the sprayers off. When the switch is set to the On position, the light on the switch illuminates. These switches will only affect the spray system when the MASTER-BOOM switch is in the On position.

Application-Rate Switch

The APPLICATION-RATE switch is located on the left side of the control panel (Figure 42). Press and hold the switch upward to increase the spray system application rate, or press and hold it downward to decrease application rate.

Boom-Lift Switches

The electric BOOM-LIFT switches raise and lower their respective booms (Figure 42). There is a left and right lift switch. Press and hold the switch upward to raise the respective boom, or press and hold the switch downward to lower the respective boom.

Sprayer-Mode Switch (HDX-Auto Model)

Use the SPRAYER-MODE switch to select between controlling the sprayer application rate manually or through automatic computer assist that controlled through the InfoCenter.

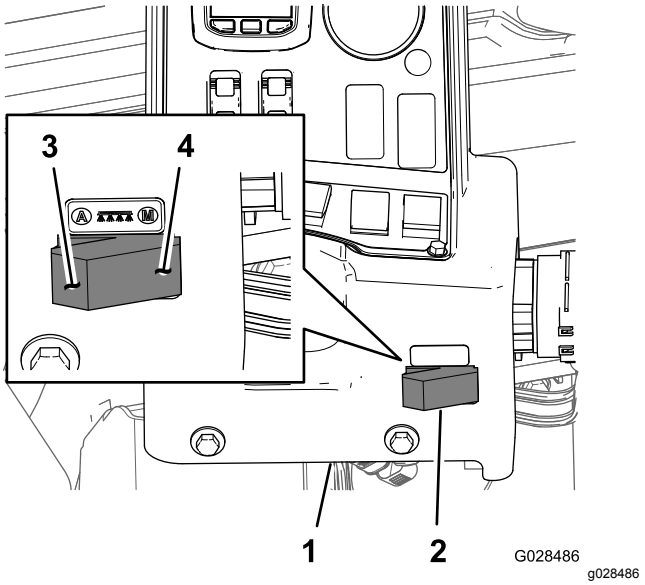

Figure 43

1. InfoCenter console
2. Sprayer-mode switch
3. Automatic mode (sprayer-mode switch position)
4. Manual mode (sprayer-mode switch position)

Regulating (Rate Control) Valve

The regulating valve located behind the tank (Figure 44), The regulating valve controls the amount of fluid that is routed to the booms or the rate return to the tank.

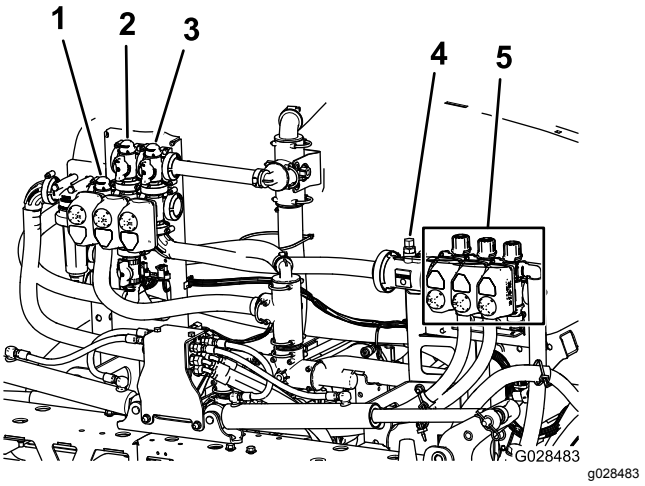

Figure 44

1. Regulating (rate control) valve
2. Agitation valve
3. Master-boom valve
4. Flowmeter
5. Boom section valve

Flowmeter

The flowmeter measures the flow rate of the fluid to the boom section valves (Figure 44).

Boom-Section Valves

Use the boom-section valves to turn the sprayer pressure on or off to the sprayer nozzles in the left, center, and right boom sections (Figure 44).

Boom Section-Bypass Valves

The boom section-bypass valves (Figure 45) redirect the fluid flow from a boom to the tank when you turn off the boom section. You can adjust these valves to ensure that the boom pressure remains constant no matter which combination of booms you are operating; refer to Calibrating the Boom Bypass (page 55).

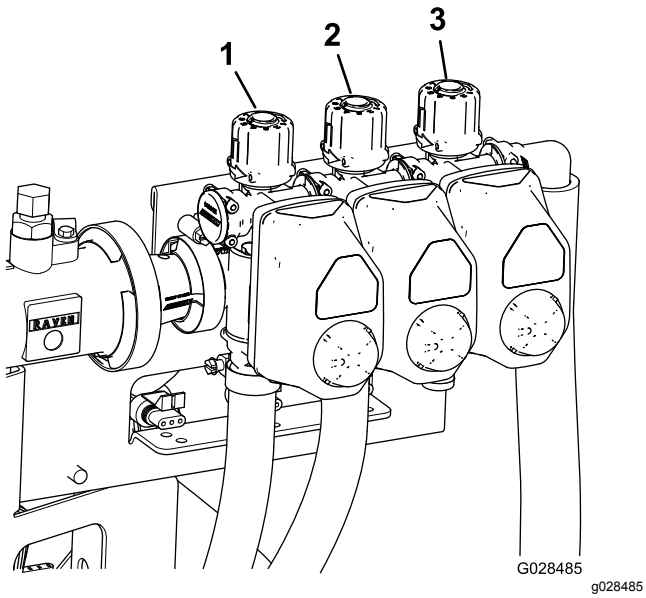

Figure 45

1. Left boom section-bypass valve
2. Center boom section-bypass valve
3. Right boom section-bypass valve

Agitation-Throttle Valve

This valve is located on the rear left side of the tank (Figure 46). Turn the knob on the valve to the 6 o'clock position to turn on the tank agitation and to the 8 o'clock position to turn off the tank agitation.

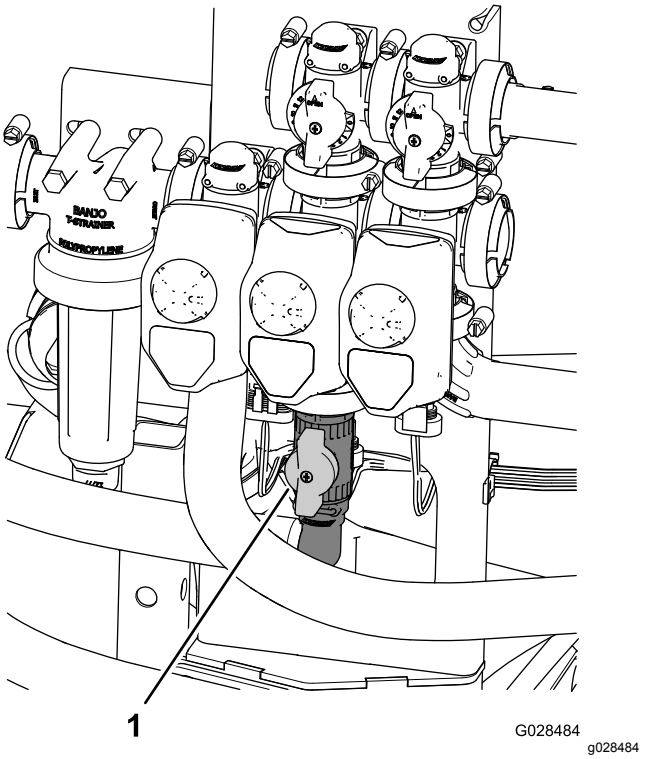

Figure 46

1. Agitation-control valve

Note: HD-series models with a manual transmission—for agitation to work the PTO and clutch must be engaged and the engine must be running above an idle. If you stop the sprayer and need agitation circulating the content of the tank, place the range shift lever in the Neutral position, let out the clutch, set the parking brake, and set the hand throttle (if equipped).

Sprayer Pump

The sprayer pump is located at the rear of the machine (Figure 47).

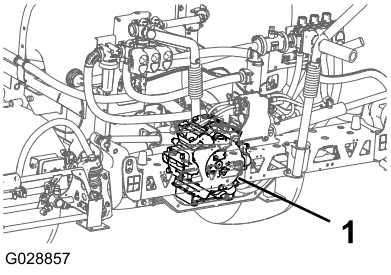

Figure 47

1. Sprayer pump

Specifications

Note: Specifications and design are subject to change without notice.

Spray system base weight (vehicle weight not included)	424 kg (935 lb)
Tank capacity	757 L (200 US gallons)
Overall vehicle length with the standard spray system	422 cm (166 inches)
Overall vehicle height with standard spray system to the top of the tank	147 cm (58 inches)
Overall vehicle height with standard spray system and the booms stored in the X pattern	234 cm (92 inches)
Overall vehicle width with the standard spray system and the booms stored in the X pattern	175 cm (69 inches)

Optional Equipment

The Toro® Company has optional equipment and accessories that you can purchase separately and install on your Workman. Contact your Authorized Service Dealer for a complete list of optional equipment that is currently available for your sprayer.

Operation

Note: Determine the left and right sides of the machine from the normal operating position.

Note: If you need to transport the vehicle on a trailer with the sprayer installed, make sure the booms are tied down and secure.

Think Safety First

Please carefully read all of the safety instructions and decals in the safety section. Knowing this information could help you or bystanders avoid injury.

Using the InfoCenter

The InfoCenter LCD display shows information about your machine, such as the operating status, various diagnostics, and other information about the machine (Figure 48). There is a splash screen and main information screen on the InfoCenter. You can switch between the splash screen and main information screen, at any time, by pressing any of the InfoCenter buttons and then selecting the appropriate directional arrow.

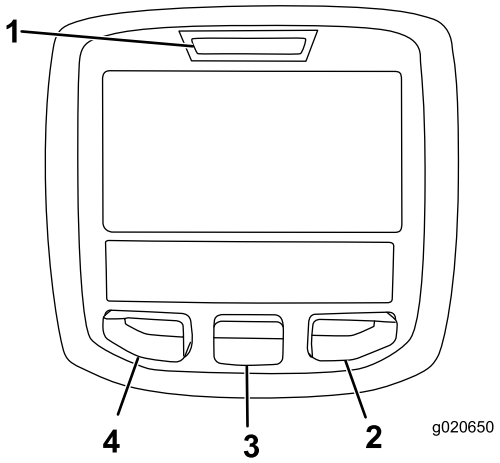

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Figure 48

1. Indicator light
2. Right button
3. Middle button
4. Left button

- Left button, Menu access/Back button—press this button to access the InfoCenter menus. You can also use it to back out of any menu you are currently using.
- Middle button—use this button to scroll down menus.
- Right button—use this button to open a menu where a right arrow indicated additional content.

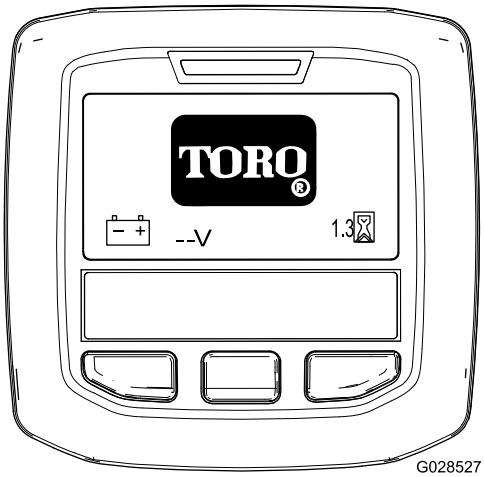
Note: The purpose of each button may change depending on what function is active at the time. The

LCD display shows an icon above each button that indicates its current function.

Starting the InfoCenter

1. Insert the key into the STARTER switch and rotate it to the On position.

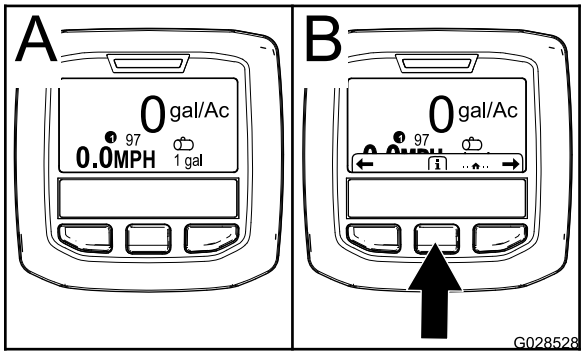
   Note: The InfoCenter will illuminate and display the initialization screen (Figure 49).



g028527

Figure 49

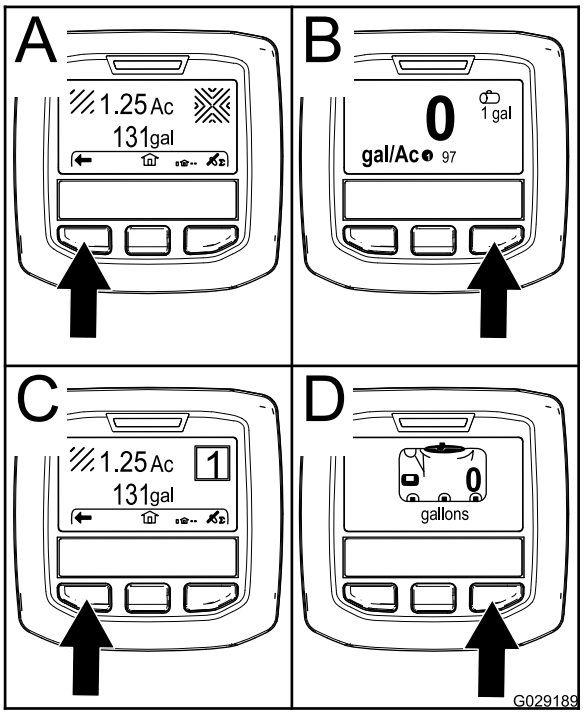
2. After approximately 15 seconds, the home screen will appear, press the center selection button to display the information context (Figure 50).



g028528

Figure 50

- Press the center selection button again to navigate to the Main Menu.
- Right selection button: **Total area sprayed** (A of Figure 51)
- Right selection button: **Application rate** (B of Figure 51)
- Left selection button: **Sub-area sprayed** (C of Figure 51)
- Left selection button: **Tank volume** (D of Figure 51)



g029189

Figure 51

Note: Rotating the STARTER switch to the start position and starting the engine will cause the values indicated in the InfoCenter display to reflect the running machine.

Accessing the Settings Menu

1. Start the InfoCenter; refer to Starting the InfoCenter (page 40).

   Note: The Home screen will display.

2. Press the center selection button to access the Information context.

   Note: The information context icon will display

3. Press the center selection button to access the Main Menu (Figure 52).

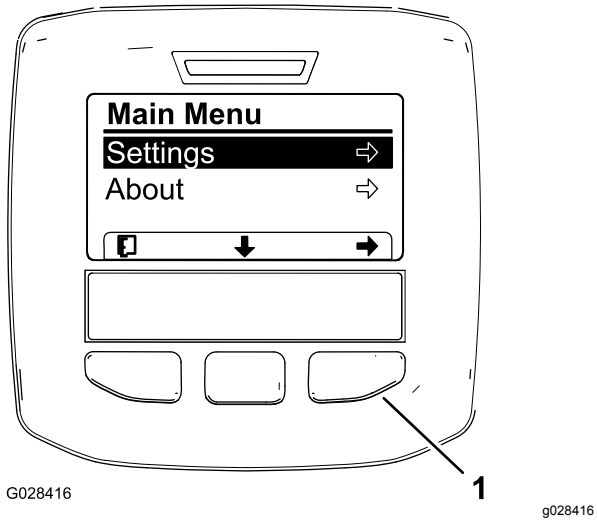


Figure 52

Additional options for the HDX-Auto model is not shown.

1. Right selection button (select context)

4. Press the right selection button to display to the Settings sub-menus.

   Note: The Main Menu will display with the Settings option selected

   Note: Pressing the center selection button (the button below the down arrow icon in the display) will move the selected option down.

Changing the Units of Measure (English and Metric)

1. Access the Settings menu; refer to Accessing the Settings Menu (page 40).
2. To change the unit of measure, press the right selection button to change the listed units of measure (Figure 53).
   - **English:** mph, gallons, and acre
   - **Turf:** mph, gallons, and 1000 ft^2
   - **SI (metric):** kph, liter, hectare

   Note: The display will switch between English and metric units

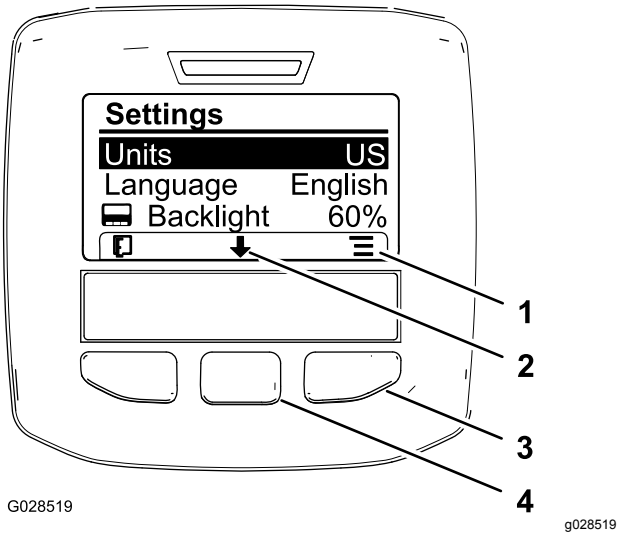


Figure 53

1. List options (icon)
2. Scroll down (icon)
3. Right selection button (list context)
4. Center selection button (scroll context)

   Note: Pressing the left selection button will save your selection, exit the Settings menu, and return to the Main Menu.
3. To change the language used in the display, pressing the center selection button (the button below the down arrow in the display) to move the selected option to Language (Figure 53).
4. Press the right selection button (the button below the list icon in the display) will to highlight the listed language used in the display (Figure 53).

   Note: Available languages include: English, Spanish, French, German, Portuguese, Danish, Netherlands, Finnish, Italian, Norwegian, and Swedish.
5. Press the left selection button to save your selection(s), exit the Settings menu, and return to the Main Menu (Figure 52).
6. Press the left selection button to return to the Home screen (Figure 53).

Adjusting the Backlighting and Contract Levels of the Display

1. Access the Settings menu; refer to Accessing the Settings Menu (page 40).
2. To adjust the backlight level of the display, press the center selection button (the button below the down arrow icon in the display) to move the selected option down to the Backlight setting (Figure 54).

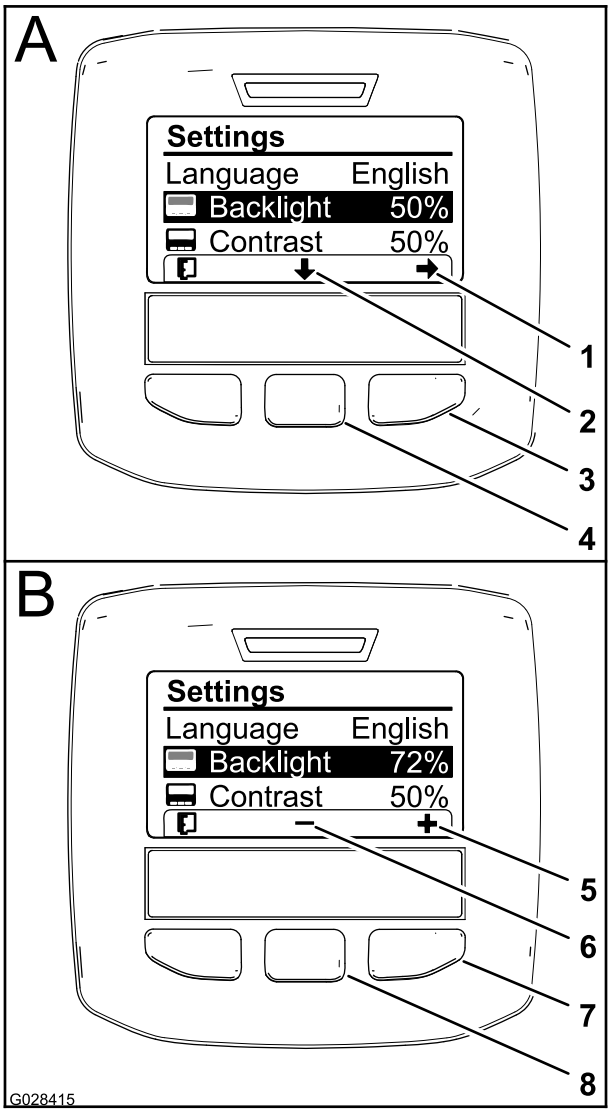


Figure 54

1. Select arrow (icon)
2. Scroll down (icon)
3. Right selection button (select context)
4. Center selection button (scroll context)
5. Increase the value (icon)
6. Decrease the value (icon)
7. Right selection button (raise value context)
8. Center selection button (lower value context)

3. Press the right selection button to display the value adjustment context (Figure 54).

   Note: The display will show a (—) icon over the center selection button and a (+) icon over the right selection button.

4. Use the center selection button and right selection button to change the brightness level of the display (Figure 54).

   Note: As you change the brightness value, the display will change the selected brightness level.

5. Press the left selection button (the button below the list icon in the display) to save your selection, exit the Backlight menu, and return to the Settings menu (Figure 54).

6. To adjust the contrast level of the display, press the center selection button (the button below the down arrow icon in the display) to move the selected option down to the Contrast setting (Figure 54).

7. Press the right selection button to display the value adjustment context (Figure 54).

   Note: The display will show a (—) icon over the center selection button and a (+) icon over the right selection button.

8. Press the left selection button (the button below the list icon in the display) to save your selection, exit the Contrast menu, and return to the Settings menu (Figure 54).

9. Press the left selection button to exit the Settings menu and return to the Main Menu (Figure 52 and Figure 54).

10. Press the left selection button to return to the Home screen (Figure 54).

InfoCenter Icons

Icon Descriptions

	Information icon
	Next
	Previous
	Scroll down
	Enter
	Change the next value in the list
	Increase
	Decrease
	Active screen
	Inactive screen
	Go to the home screen
	Active home screen

	Save value
	Exit menu
	Hour meter
PIN	Correct PIN code entered
	Check PIN entry/Calibration verification
	Master boom On/Boom sprayer Off
	Master boom On/Boom sprayer On
	Full spray tank
	Spray tank at half
	Tank level low
	Empty spray tank
or	TURF units (1,000 square feet)
	Area sprayed
	Volume sprayed
	Adjust tank volume
	Home screen
	Clear active area
	Clear all areas
	Adjust digit

Icon Descriptions (cont'd.)

+	Select the next area for accumulation
1	Application rate 1
2	Application rate 2
++	Boost rate

Using the Menus

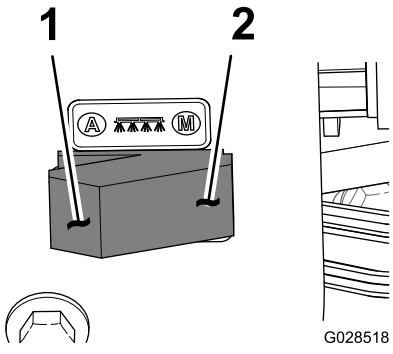
Access the calibration settings in the InfoCenter menu system by pressing the menu access button while at the main screen. This will bring you to the main menu. Refer to the following tables for a summary of the options available from the menus:

Calibration	
Menu Item	**Description**
Test Speed	This menu sets the test speed for calibration.
Flow Calibration	This menu calibrates the flow meter.
Speed Calibration	This menu calibrates the speed sensor.

Selecting the Sprayer Programming

HDX-Auto Model

Switching between Manual Mode and Automatic Mode



g028518

Figure 55

1. Automatic mode (switch position)
2. Manual mode (switch position)

- At the control console, press the SPRAYER-MODE switch to the left to control the application rate

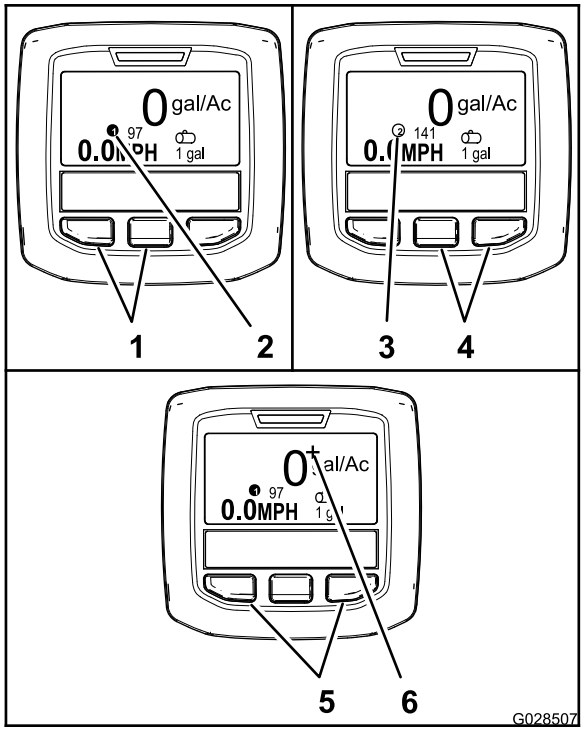
of the sprayer through the InfoCenter in the Automatic mode.

Note: An icon for the application rate will appear in the display of the InfoCenter.

- Press the SPRAYER-MODE switch to the right to control the application rate of the sprayer by hand in the Manual mode.

  Note: When switching from the Automatic mode to the Manual mode, the icon for the application rate will disappear in the display.

Switching between Sprayer Programming Settings



g028507

Figure 56

1. Left and center buttons—selecting application rate 1
2. Icon—application rate 1
3. Icon —application rate 2
4. Center and right buttons—selecting application rate 2
5. Left and right buttons—selecting application rate boost
6. Icon —application rate boost

- To select application rate 1, press the left 2 buttons of the InfoCenter (Figure 56).

  Note: An icon ❶ G028714 will appear.

- To select application rate 2 (application rate), press the right 2 buttons (Figure 56).

  Note: An icon ② G028715 will appear.

- To temporarily apply a boost application rate, press and hold the 2 outer buttons (Figure 56).

  Note: An icon + G028716 will appear.

  Note: The application rate boost is an additional percent above the active program (1 or 2) application rate. Press and hold the buttons to apply the boost application rate; release the buttons to stop the boost rate.

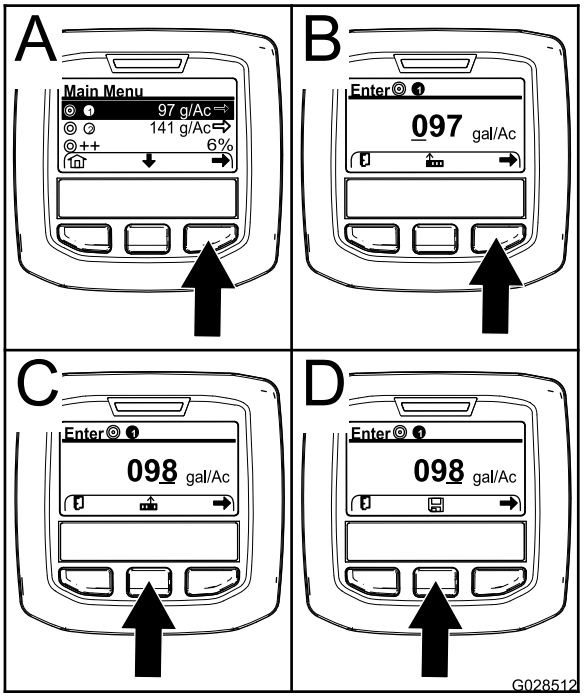
Programming the Application Rate and Application Rate Boost

HDX-Auto Model

Programming the Application Rate 1 and 2

1. From the Home screen, press the center selection button to navigate to the Main Menu.
2. If needed, press the center selection button to highlight the application rate for sprayer program 1 (Figure 57).

   Note: The icon for sprayer application rate 1 looks like the numeral 1 in a circle to the right of a bull's-eye target.



g028512

Figure 57

3. Press the right selection button to select sprayer program 1 (A of Figure 57).
4. Set the numerical value by pressing the following selection buttons:
   - Press the right selection button (B of Figure 57) to move the cursor to the next numerical position to the right.
   - Press the center selection button (C of Figure 57) to increase the numerical value (0 to 9)

5. Once the right-most value is set, press the right selection button.

   Note: The Save Icon will appear above the center selection button (D of Figure 57).

6. Press the center selection button (D of Figure 57) to save the programming for application rate.
7. Press the center selection button to highlight the application rate for sprayer program 2.

   Note: The icon for sprayer application rate 2 looks like the numeral 2 in a circle to the right of a bull's-eye target.

   Note: You can use the application rate for sprayer program 2 to conveniently apply a higher or lower application rate to your turf site as needed.

8. Repeat steps 4 through 6.

Programming the Application Boost Rate

The application boost adds a specified percent to the active program application rate when the outer 2 buttons of the InfoCenter are pressed while straying in Automatic mode.

1. From the Home screen, press the center selection button to navigate to the Main Menu.
2. If needed, press the center selection button to highlight the application rate boost (Figure 58).

   Note: The icon for the the application rate boost look 2 (+) signs to the right of a bull's-eye target (Figure 58).

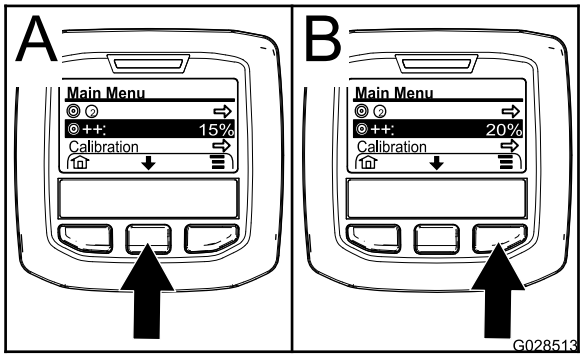


Figure 58

3. Press the right selection button (Figure 58) to increase the boost percentage in 5% increments (20% maximum).

Using the Settings Menu

HDX-Auto Model

Selecting the Active Application Rate from the Settings Menu

1. From the Main Menu, press the center selection button to navigate to the Settings menu.
2. Press the center selection button to highlight the Active application rate setting (Figure 59).

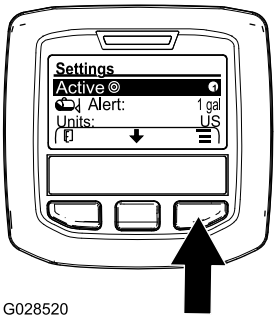


Figure 59

3. Press the right selection button to toggle between application rate 1 and 2 (Figure 59).
4. Press the left selection button to save and return to the main menu

Setting the Tank-Level Alert

1. From the Main Menu, press the center selection button to navigate to the Settings menu.
2. Press the center selection button to highlight the Alert setting (Figure 60).

   Note: The (-) and (+) icons will appear above the center and right selection buttons.

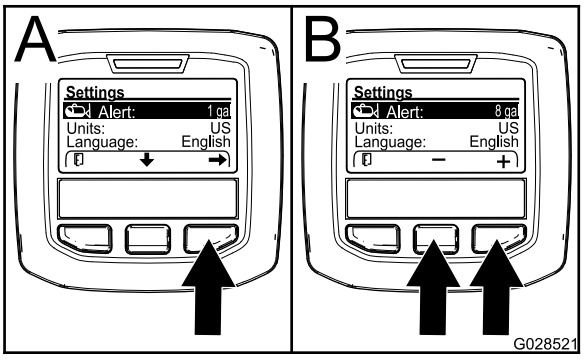


Figure 60

3. Press the right selection button (Figure 60).
4. Use the center or right selection buttons to enter the minimum quantity in the tank when the alert will display during sprayer operation (Figure 60).

Note: Holding the button down will increase the value of the tank alert by 10%.

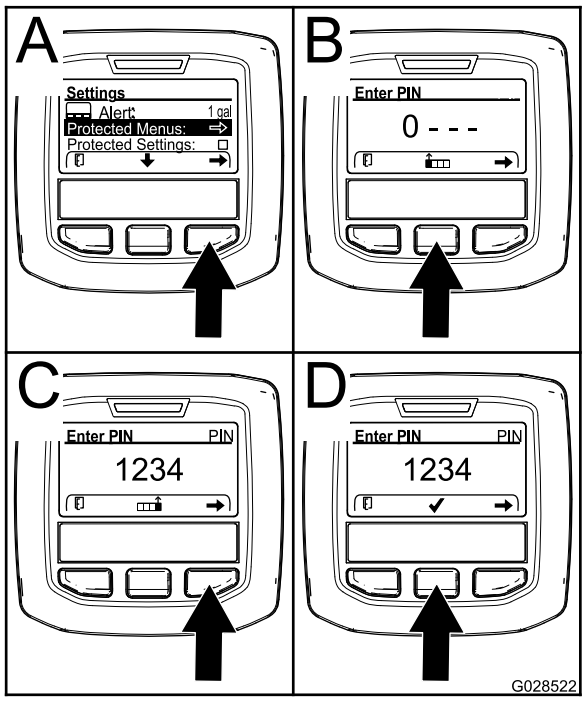
5. Press the left selection button to save and return to the main menu

Entering the PIN into the InfoCenter

Note: Entering the PIN allows you to change the access protected settings and maintain the password.

Note: The factory entered PIN number is 1234.

1. From the Main Menu, press the center selection button to navigate to the Settings menu.
2. Press the center selection button to highlight the Protected Menus setting.



g028522

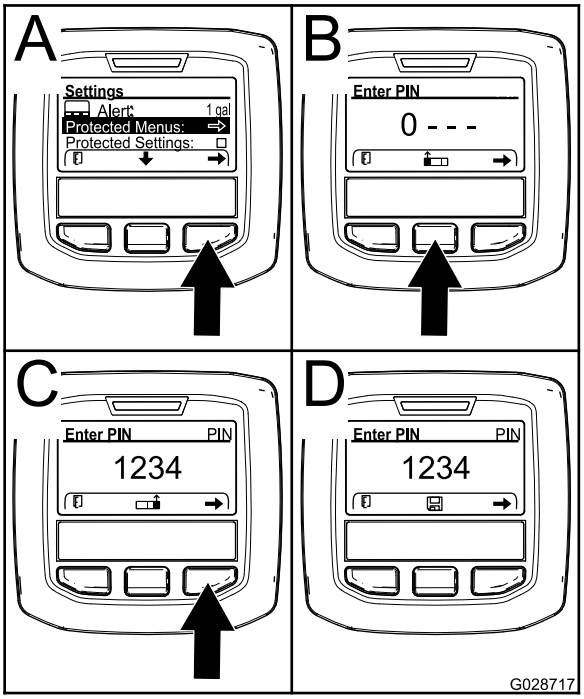
Figure 61

3. Press the right select button to select Protected Menus (A of Figure 61).
4. Set the numerical value in the PIN entry screen by pressing the following selection buttons:
   - Press the center selection button (B of Figure 61) to increase the numerical value (0 to 9)
   - Press the right selection button (C of Figure 61) to move the cursor to the next numerical position to the right.
5. Once the right-most value is set, press the right selection button.

   Note: The checkmark icon will appear above the center selection button (D of Figure 61).
6. Press the center selection button (D of Figure 61) to enter the password.

Changing the PIN

1. Enter the current PIN; refer to steps 1 through 6 in Entering the PIN into the InfoCenter (page 46).
2. From the Main Menu, press the center selection button to navigate to the Settings menu.
3. Press the center selection button to highlight the Protected Menus setting.



g028717

Figure 62

4. Press the right select button to select Protected Menus (A of Figure 62).
5. Enter the new PIN into the entry screen by pressing the following selection buttons:
   - Press the center selection button (B of Figure 62) to increase the numerical value (0 to 9)
   - Press the right selection button (C of Figure 62) to move the cursor to the next numerical position to the right.
6. Once the right-most value is set, press the right selection button.

   Note: The Save icon will appear above the center selection button (D of Figure 62).
7. Wait until the InfoCenter displays the “value saved message” and the red indicator light illuminates.

Setting the Protect Settings

Important: **Use this function to lock and unlock the application rate.**

Note: You must know the 4-digit PIN number to change settings for functions in the protected menus.

1. From the Main Menu, press the center selection button to navigate to the Settings menu.
2. Press the center selection button to highlight the Protect Settings entry.

   Note: If there is no X in the box to the right of Protect Settings entry, the sub-menus for L Boom, C Boom, R Boom, and Reset Defaults are not locked with the PIN (Figure 64).

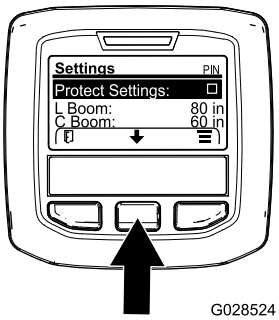


Figure 63

3. Press the right selection button.

   Note: The PIN entry screen appears
4. Enter the PIN; refer to step 4 in Entering the PIN into the InfoCenter (page 46).
5. Once the right-most value is set, press the right selection button.

   Note: The Check Mark icon will appear above the center selection button.
6. Press the center selection button.

   Note: The sub-menus for L Boom, C Boom, R Boom, and Reset Defaults will appear.
7. Press the center selection button to highlight the Protect Settings entry
8. Press the right selection button.

   Note: An X appears in the box to the to the right of Protect Settings entry (Figure 64).

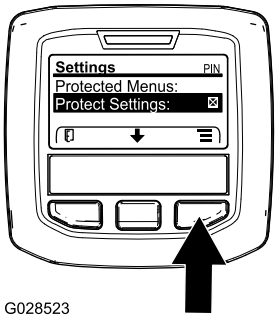


Figure 64

9. Wait until the InfoCenter displays the “value saved message” and the red indicator light illuminates.

   Note: The sub-menus below the Protected Menus entry are locked with the PIN.

   Note: To access the sub-menus, highlight the Protect Settings entry, press the right selection button, enter the PIN, and when the Check Mark icon appears—press the center selection button.

Resetting the Boom Section Sizes to Default

1. Press the center selection button to navigate to the Reset Default entry (Figure 65).

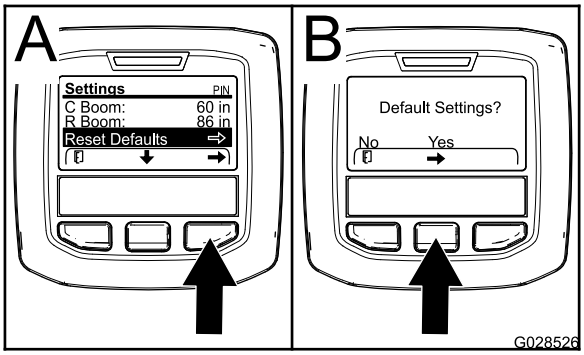


Figure 65

2. Press the right selection button to select Reset Default.
3. In the Default Settings screen, press the left selection butt for No or the right selection button for Yes (Figure 65).

   Note: Selecting Yes will restore the boon section sizes to the factory setting.

Preparing to Use the Sprayer

Cleaning the Suction Strainer

Service Interval: Before each use or daily Clean the suction strainer more often when using wettable powders.

1. Position the sprayer on a level surface, set the parking brake, stop the pump, stop the engine, and remove the key from the STARTER switch.
2. At the top of the sprayer tank, remove the retainer that secures the hose fitting attached to the large hose from the strainer housing (Figure 66).

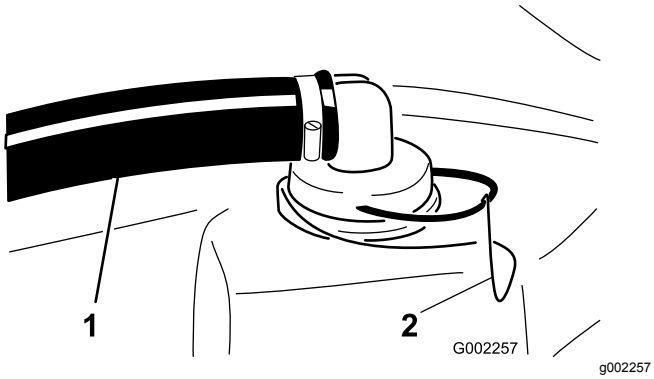


Figure 66

1. Suction hose
2. Retainer

3. Remove the hose and hose fitting from the strainer housing (Figure 66).
4. Pull the suction strainer out of the strainer housing in the tank (Figure 67).

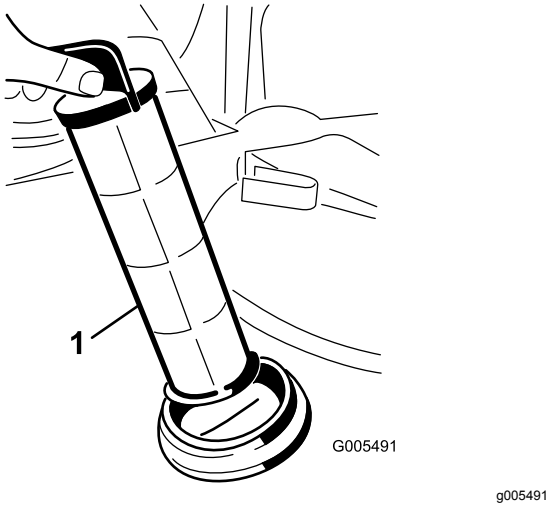


Figure 67

1. Suction strainer

5. Clean the suction strainer with clean water.
6. Insert the suction strainer into the strainer housing until the strainer is fully seated.
7. Align the hose and hose fitting to the strainer housing at the top of the tank, and secure fitting and housing with the retainer that you removed in step 2.

Inspecting the Tank Straps

Service Interval: Before each use or daily—Check the tank straps.

Important: **Over-tightening the tank strap fasteners can result in deforming and damaging the tank and straps.**

1. Fill the main tank with water.
2. Check to see if there is any movement between the tank straps and the tank (Figure 68).

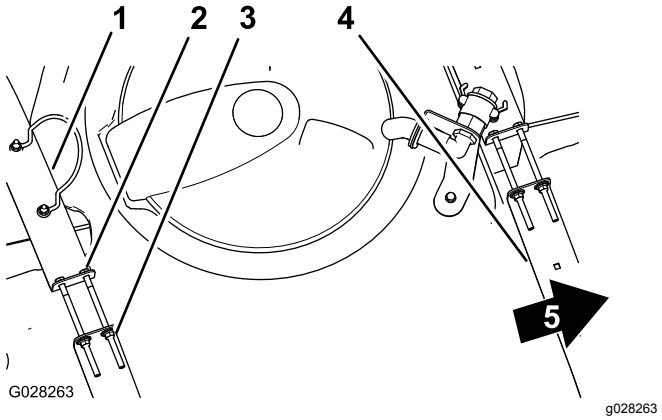


Figure 68

1. Rear tank strap
2. Bolt
3. Flanged locknut
4. Forward tank strap
5. Front of the machine

3. If the tank straps fit loose to the tank, tighten the flanged locknuts and bolts at the top of straps until the straps are flush with the surface of the tank (Figure 68).

   Note: Do not over-tighten the tank strap hardware.

Operating the Sprayer

To operate the Multi Pro WM first fill the spray tank, then apply the solution to the work area, and finally clean the tank. It is important that you complete all 3 of these steps in succession to avoid damaging the sprayer. For example, do not mix and add chemicals in the spray tank at night and then spray in the morning. This would lead to separation of the chemicals and possible damage to the sprayer components.

Important: **The tank markings are for reference only and cannot be considered accurate for calibration.**

⚠ CAUTION

Chemicals are hazardous and can cause personal injury.

- **Read the directions on the chemical labels before handling the chemicals, and follow all manufacturer recommendations and precautions.**
- **Keep chemicals away from your skin. Should contact occur, wash the affected area thoroughly with soap and clean water.**
- **Wear goggles and any other protective equipment recommended by the chemical manufacturer.**

The Multi Pro WM has been specifically designed to have high durability in order to give it the long sprayer life you need. Different materials have been chosen for specific reasons at different locations on your sprayer to meet this goal. Unfortunately there is no single material which is perfect for all foreseeable applications.

Some chemicals are more aggressive than others and each chemical interacts differently with various materials. Some consistencies (e.g. wettable powders, charcoal) are more abrasive and lead to higher than normal wear rates. If a chemical is available in a formulation that would provide increased life to the sprayer, use this alternative formulation.

Remember to clean your sprayer thoroughly after all applications. This will do the most to ensure your sprayer has a long and trouble free life.

Filling the Fresh Water Tank

Always fill the fresh water tank with clean water before handling or mixing any chemicals.

The fresh water tank is located on the ROPS, behind the passenger seat (Figure 69). It supplies a source of fresh water for you to wash chemicals off of your skin, eyes, or other surfaces in case of accidental exposure.

- To fill the tank, unscrew the cap on the top of the tank and fill the tank with fresh water. Replace the cap.
- To open the fresh water tank spigot, turn the lever on the spigot.

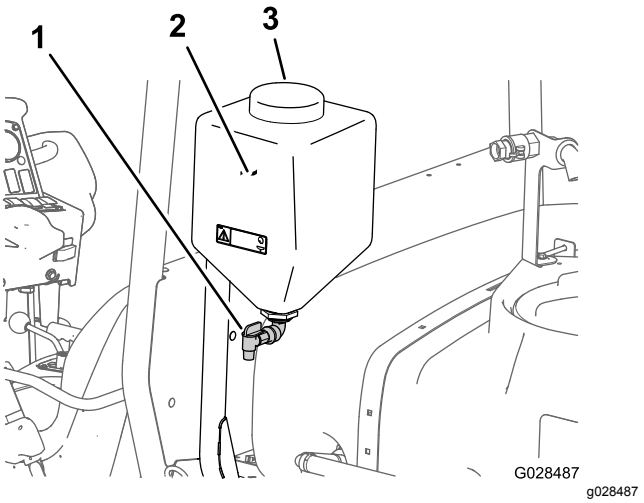


Figure 69

1. Filler cap
2. Fresh water tank
3. Spigot

Filling the Spray Tank

Install the Chemical Pre-Mix Kit for optimal mixing and exterior tank cleanliness.

Important: **Ensure that the chemicals you will be using are compatible for use with Viton (see the manufacturer's label; it should indicate if it is not compatible). Using a chemical that is not compatible with Viton will degrade the O-rings in the sprayer, causing leaks.**

Important: **After filling the tank for the first time, check the tank straps for any play. Tighten them as necessary.**

1. Stop the sprayer on a level surface, move the range selector to the Neutral position, stop the engine, and set the parking brake.
2. Determine the amount of water needed to mix the amount of chemical you need as prescribed by the chemical manufacturer.
3. Open the tank cover on the spray tank.

   Note: The tank lid is located in the center of the top of the tank. To open it, turn the front half of the cover counterclockwise and swing it open. You can remove the strainer inside for cleaning. To seal the tank, close the cover and rotate the front half clockwise.
4. Add 3/4 of the required water to the spray tank using the anti-siphon fill receptacle.

   Important: **Always use fresh clean water in the spray tank. Do not pour concentrate into an empty tank.**
5. Start the engine, engage the PTO, and set the hand throttle if equipped.

6. Turn the AGITATION switch on.
7. Add the proper amount of chemical concentrate to the tank, as directed by the chemical manufacturer.

   Important: **If you are using a wettable powder, mix the powder with a small amount of water to form a slurry before adding it to the tank**
8. Add the remaining water to the tank.

   Note: For better agitation, decrease the application rate setting.

Operating the Booms

The BOOM-LIFT switches on the sprayer control panel allow you to move the booms between the transport position and the spray position without leaving the operator's seat. Change boom positions while the machine is stationary.

Setting the Hydraulic Lift Lock

Engage the hydraulic lift lever and lock it to provide hydraulic power for control of the boom lift.

1. Push forward the hydraulic-lift lever (Figure 70 or Figure 71).

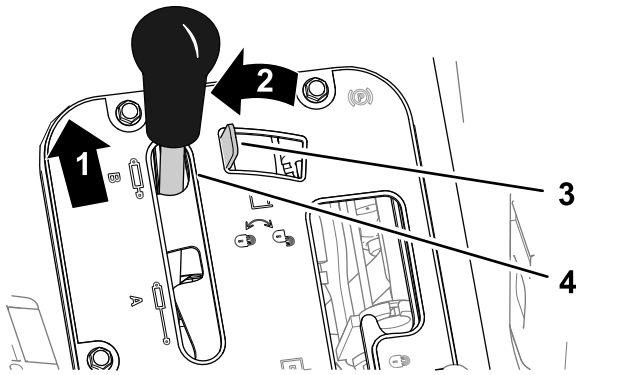


Figure 70
Manual Transmission Workman Vehicles

1. Push forward
2. Move left
3. Hydraulic-lift lock
4. Hydraulic-lift lever

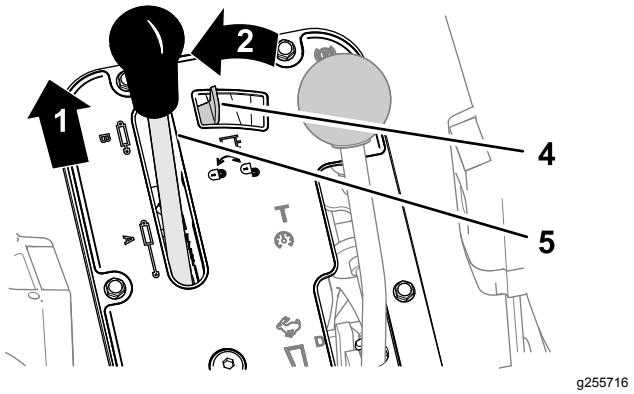


Figure 71
Automatic Transmission Workman Vehicles

1. Push forward
2. Move left
3. Hydraulic-lift lock
4. Hydraulic-lift lever

2. Move the hydraulic-lift lock left to engage the lock (Figure 70 or Figure 71).

Changing the Boom Position

1. Stop the sprayer on level ground.
2. Use the BOOM-LIFT switches to lower the booms.

   Note: Wait until the booms reach the full, extended spray position.
3. When the booms need to be retracted, stop the sprayer on level ground.
4. Use the BOOM-LIFT switches to raise the booms, until they have moved completely into boom transport cradle forming the “X” transport position and the boom cylinders are fully retracted.

   Important: **To prevent damage to the boom actuator cylinder, make sure that the actuators are fully retracted before transporting the machine.**

Using the Boom Transport Cradle

The sprayer is equipped with a boom transport cradle that has a unique safety feature. In the event of accidental boom contact with a low overhead object while in the transport position, the boom(s) can be pushed out of the transport cradles. If this occurs, the booms will come to rest in a near horizontal position to the rear of the vehicle. While the booms will not be damaged due to this movement, they should be immediately put back into the transport cradle.

Important: **The booms can be damaged by transporting them in any position other than the “X” transport position using the boom transport cradle.**

To put the booms back into the transport cradle, lower the boom(s) to the spray position, and then raise the boom(s) back into the transport position. Make sure that the boom cylinders are fully retracted to prevent actuator rod damage.

Spraying

Using the Sprayer

Important: **In order to ensure that your solution remains well mixed, use the agitation feature whenever you have solution in the tank. For agitation to work, the PTO must be engaged and the engine must be running above an idle. If you stop the vehicle and need agitation on, place the shift lever in the Neutral position, set the parking brake, Engage the PTO, engage the clutch, and set the hand throttle, if equipped.**

Note: This procedure assumes that the PTO is engaged (HD-series models with a manual transmission) and the boom section valve calibration has been completed.

1. Lower the booms into position.
2. For the HDX-Auto model, set the SPRAYER-MODE switch as following:
   - When using the sprayer in the manual mode press the switch to the right; refer to Sprayer-Mode Switch (HDX-Auto Model) (page 37).
   - When using the sprayer in the automatic mode press the switch to the left.
3. Set the MASTER-BOOM switch to the Off position.
4. Set the individual boom switches, as needed, to the On positions.
5. Drive to the location where you will be spraying.
6. Navigate to the Application Rate screen on the InfoCenter and set the desired rate. To do this:
   A. Ensure that the pump is On.
   B. For HD-series models with a manual transmission, elect the desired gear range.
   C. Begin driving at your target ground speed.
   D. For HD-series models with a manual transmission or with a automatic transmission used in the manual mode, verify that the monitor displays the correct application rate. If needed, manipulate the APPLICATION-RATE switch until the monitor displays the desired application rate.

      Note: HD-series models with a automatic transmission that are operated in the automatic mode, the computer will automatically adjust the sprayer pressure to maintain the application rate.

   E. Return to the location where you will begin spraying.
7. Set the MASTER-BOOM switch to the On position and begin spraying.

   Note: When the tank is nearly empty, the agitation may cause foaming in the tank. To prevent this, turn the agitation valve off. Alternatively, you can use an anti-foaming agent in the tank.
8. When finished spraying, set the MASTER-BOOM switch to the Off position to turn off all BOOM-SEGMENT switches, and disengage the PTO lever (HD-series models with a manual transmission).

Turf Care Precautions while Operating in Stationary Modes

Important: **Under some conditions, heat from the engine, radiator, and muffler can potentially damage grass when operating the sprayer in a stationary mode. Stationary modes include tank agitation, hand spraying with a spray gun, or using a walking boom.**

Use the following precautions:

- **Avoid** stationary spraying when conditions are very hot and/or dry, as turf can be more stressed during these periods.
- **Avoid** parking on the turf while stationary spraying. Park on a cart path whenever possible.
- **Minimize** the amount of time the machine is left running over any particular area of turf. Both time and temperature affect how much the grass may be damaged.
- **Set the engine speed as low as possible** to achieve the desired pressure and flow. This will minimize the heat generated and the air velocity from the cooling fan.
- **Allow heat to escape** upward from the engine compartment by raising the seat assemblies during stationary operation rather than being forced out under the vehicle.

Spraying Tips

- Do not overlap areas where you have previously sprayed.
- Watch for plugged nozzles. Replace all worn or damaged nozzles.

- Use the MASTER-BOOM switch to stop the spray flow before stopping the sprayer. Once stopped, use the neutral engine speed lock to hold the engine speed up to keep the agitation running.
- You will obtain better results if the sprayer is moving when you turn the booms on.
- Watch for changes in the application rate that may indicate that your speed has changed beyond the range of the nozzles or there is a problem with the spray system.

HD-Series Models with a Automatic Transmission Operated in the Automatic Mode

Note: Refer to the nozzle selection guide that is available through your Authorized Toro Dealer.

- If you are operating the sprayer at a slow ground speed that causes the computer to maintain too low of a sprayer system pressure for the application rating of the selected nozzles, the chemical solution will discharge from the nozzle incorrectly (running or dribbling). Select a sprayer nozzle with a lower application rate range.
- If you are operating the sprayer at a high ground speed that causes the computer to use full sprayer system pressure and the sprayer pressure is inadequate to achieve the desired application rate. To correct you application rate, slow your ground speed to achieve your application rate or select a sprayer nozzle with a higher application rate range.

Unclogging a Nozzle

If a nozzle becomes clogged while you are spraying, you can clean it using a hand spray bottle of water or a toothbrush.

1. Stop the sprayer on a level surface, stop the engine, and set the parking brake.
2. Set the master BOOM-SWITCH to the Off position and then set the PUMP switch to the Off position.
3. Remove the clogged nozzle and clean it using a spray bottle of water or a toothbrush.

Selecting a Nozzle

Note: Refer to the nozzle selection guide that is available through your Authorized Toro Dealer.

The turret bodies can accept up to 3 different nozzles. To select the desired nozzle:

1. Stop the sprayer on a level surface, stop the engine, and set the parking brake.
2. Set the MASTER-BOOM switch to the Off position and set the PUMP switch to the Off position.
3. Rotate the turret of the nozzles in either direction to the correct nozzle.

Cleaning the Sprayer

Important: **You must always empty and clean the sprayer immediately after each use. Failure to do so may cause the chemicals to dry or thicken in the lines, clogging the pump and other components.**

Toro recommends using the approved rinse kit for this machine. Contact your Authorized Toro Dealer for more information.

Clean the spray system after **each** spraying session. To properly clean the spray system:

- Use three separate rinses.
- Use the cleaners and neutralizers as recommended by the chemical manufacturers.
- Use pure clean water (no cleaners or neutralizers) for the **last** rinse.

1. Stop the sprayer, set the parking brake, and turn off the engine.
2. Locate the tank drain valve on the left side of the machine (Figure 72).

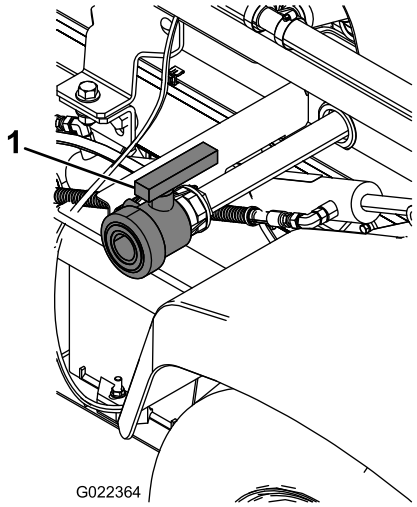


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Figure 72

1. Tank-drain handle

3. Open the valve to drain all unused material from the tank(Figure 73).

   Important: **Dispose of all waste chemicals according to local codes and the material manufacturer's instructions.**

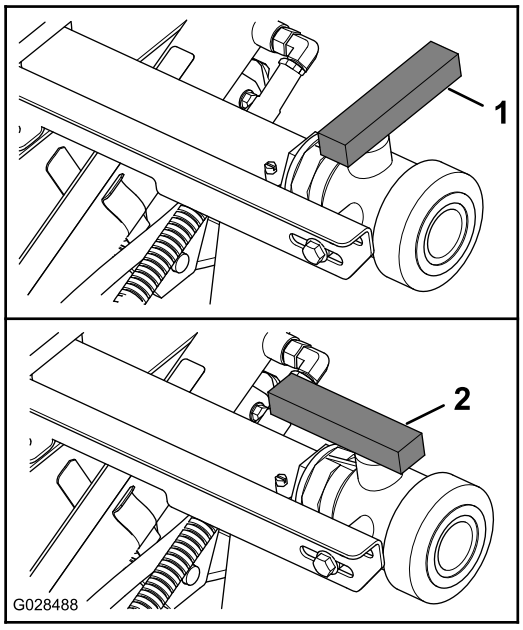

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Figure 73

1. Valve open
2. Valve closed

4. Close the drain valve (Figure 73).
5. Fill the tank with at least 190 L (50 US gallons) of clean fresh water and close the cover.

   Note: You can use a cleaning/neutralizing agent in the water as needed. On the final rinse, use only clean, clear water.
6. Lower the booms into the spray position.
7. Start the engine and move the throttle lever to a higher idle.
8. Ensure that the AGITATION switch is in the On position.
9. Set the PUMP switch to the On position and use the APPLICATION-RATE switch to increase the pressure to a high setting.
10. Set the MASTER-BOOM switch and BOOM-CONTROL switches to the On positions to begin spraying.
11. Allow all of the water in the tank to spray out though the nozzles.
12. Check the nozzles to ensure that they are all spraying correctly.
13. Set the MASTER-BOOM switch to the Off position, set the PUMP switch to the Off position, and stop the engine.
14. Repeat steps 5 through 13 at least 2 more times to ensure that the spray system is fully cleaned.

    Important: **You must always complete this procedure at least 3 times to ensure that the spray system is fully clean, preventing damage to the system.**
15. Clean the strainer; refer to Cleaning the Suction Strainer (page 48).

    Important: **If you used wettable powder chemicals, clean the strainer after each tank.**
16. Using a garden hose, rinse off the outside of the sprayer with clean water.
17. Remove the nozzles and clean them by hand. Replace damaged or worn nozzles.

Calibrating the Sprayer

Preparing the Machine for Calibration

Important: **Before calibrating the sprayer system used on the HDX-Auto model, fill the sprayer tank as required with clean water and operate the machine while spraying at 40 psi or greater for a minimum of 30 minutes.**

Note: Before using the sprayer for the first time, if you change the nozzles, or as needed, calibrate the sprayer flow, speed, and boom bypass.

1. Fill the spray tank with clean water.

   Note: Ensure that there is enough water in the tank to complete each of the calibration procedures.
2. Lower the left and right boom sections.
3. For the **HDX-Auto model**—operate the machine while spraying at 40 psi or greater for a minimum of 30 minutes. Fill the sprayer tank with clean water when finished.
4. Set the protected settings to off; refer to Setting the Protect Settings (page 47).
5. For the **HDX-Auto model**—set the sprayer system to the Manual Mode; refer to Switching between Manual Mode and Automatic Mode (page 43).

Calibrating the Sprayer Flow

Operator supplied equipment: Stop watch capable of measuring ± 1/10 second and a container graduated in 50 ml (1 fl-oz) increments.

Note: Calibrating the sprayer flow for **machines without a throttle lock** requires 2 people.

1. Set the transmission as follows:
   - For HD-Series Models with a **manual transmission**—shift the transmission to Neutral
   - For the **HDX-Auto model**—shift the transmission to P (park).
2. Set the parking brake and turn the engine on.

3. Set the PUMP switch to the On position, and turn on the agitation.
4. Press down on the accelerator pedal until you reach the maximum engine speed.
5. Set the engine speed as follows:
   - For machines **without** the optional throttle lock—have 1 person press down on the accelerator pedal until maximum engine speed is reached.

     Note: The other person will collect samples from the sprayer nozzles.
   - For machines **with** the optional throttle lock, press down on the accelerator pedal until maximum engine speed is reached and set the throttle lock; refer to operation instructions for your Workman hand throttle kit.
6. Set all 3 boom switches and the MASTER-BOOM switch to the On position.
7. Prepare to perform a catch test using the graduated container.
8. Start at 40 psi (2.75 bar) and use the APPLICATION-RATE switch to adjust the spray pressure so a catch test yields the amounts listed in the table below.

   Note: Collect 3 samples at 15 seconds each and average the quantities of water collected.

Nozzle Color	Milliliters collected in 15 seconds	Ounces collected in 15 seconds
Yellow	189	6.4
Red	378	12.8
Brown	473	16.0
Gray	567	19.2
White	757	25.6
Blue	946	32.0
Green	1,419	48.0

9. Once the catch test has yielded the amounts listed in the table above, set the SUPERVISOR RATE-LOCKOUT switch to the Lock position.
10. Turn off the MASTER BOOM switch.
11. On the InfoCenter, navigate to the Calibration menu and select Flow Calibration as follows:

    Note: Selecting the Home Screen icon at any time will cancel calibrations.

    A. Press the center button of the info center twice to access the menus.

    B. Enter the calibration menu by pressing the RH button on the info center.

    C. Select Flow Cal by highlighting Flow Cal and press the RH button on the InfoCenter.

    D. In the next screen, enter the known quantity of water that will be sprayed out of the booms for the calibration procedure; refer to the chart below.

    E. Once the known quantity has been entered press the RH button on the info center.
12. Using the plus (+) and minus (-) symbols, enter the flow volume according to the table below.

Nozzle Color	Liters	US Gallons
Yellow	42	11
Red	83	22
Brown	106	28
Gray	125	33
White	167	44
Blue	208	55
Green	314	83

13. Turn on the MASTER BOOM switch for 5 minutes.

    Note: As the machine sprays, the info center will display the quantity of fluid it's counting.
14. After five minutes of spraying, click the check mark by pressing the center button on the info center.

    Note: It is acceptable if the gallons displayed during the calibration process do not match the known quantity of water entered into the InfoCenter.
15. After 5 minutes, turn off the MASTER BOOM switch and select the check mark on the InfoCenter.

    Note: Calibration is now complete.

Calibrating the Sprayer Speed

1. Ensure that the sprayer tank is filled with water.
2. On an open, flat area, mark off a distance between 45–152 m (150–500 ft).

   Note: Toro recommends marking off 152 m (500 ft) for more accurate results.
3. Start the engine and drive to the start of the marked-off distance.

   Note: Align the center of the front tires with the starting line for the most accurate measurement.
4. On the InfoCenter, navigate to the Calibration menu and select Speed Calibration.

   Note: Selecting the Home Screen icon at any time will cancel calibrations.
5. Select the Next arrow (→) on the InfoCenter.
6. Using the plus (+) and minus (-) symbols, enter the marked-off distance into the InfoCenter.
7. Perform one of the following:
   - For HD-Series Models with a **manual transmission**—shift the machine into first gear and drive the marked distance in a straight line at full throttle.
   - For the **HDX-Auto model**,—shift the machine into D (drive) and drive the marked distance in a straight line at full throttle.
8. Stop the machine at the marked-off distance and select the check mark on the InfoCenter.

   Note: Slow down and roll to a stop to align the center of the front tires with the finish line, for the most accurate measurement.

   Note: Calibration is now complete.

Calibrating the Boom Bypass

Important: **Select an open flat area to perform this procedure.**

Note: Calibrating the boom bypass for **machines without a throttle lock** requires 2 people.

1. Ensure that the sprayer tank is filled with water.
2. Set the transmission as follows:
   - For HD-Series Models with a **manual transmission**—shift the transmission to Neutral
   - For the **HDX-Auto model**—shift the transmission to P (park).
3. Set the parking brake and turn the engine on.
4. Set the 3 boom switches to the On position, but leave the MASTER BOOM switch off.
5. Set the PUMP switch to the On position, and turn on the agitation.
6. Set the engine speed as follows:
   - For machines **without** the optional throttle lock—have 1 person press down on the accelerator pedal until maximum engine speed is reached.

     Note: The other person will adjust the boom section-bypass valves.
   - For machines **with** the optional throttle lock, press down on the accelerator pedal until maximum engine speed is reached and set the throttle lock; refer to operation instructions for your Workman hand throttle kit.
7. On the InfoCenter, navigate to the Calibration menu and select Test Speed.

   Note: Selecting the Home Screen icon at any time will cancel calibrations.
8. Using the plus (+) and minus (-) symbols, enter a test speed of 5.6 Km/h (3.5 mph), then select the Home icon.
9. Using the APPLICATION RATE switch, adjust the application rate according to the table below.

Nozzle Application Rate Table

Nozzle Color	SI (Metric)	English	Turf
Yellow	159 L/ha	17 gpa	0.39 gpk
Red	319 L/ha	34 gpa	0.78 gpk
Brown	394 L/ha	42 gpa	0.96 gpk
Gray	478 L/ha	51 gpa	1.17 gpk
White	637 L/ha	68 gpa	1.56 gpk
Blue	796 L/ha	85 gpa	1.95 gpk
Green	1,190 L/ha	127 gpa	2.91 gpk

10. Turn off the left boom and adjust the boom bypass valve (Figure 74) until the pressure reading is at the previously adjusted level (typically 40 psi or 2.75 bar).

    Note: The numbered indicators on the bypass valve are for reference only.

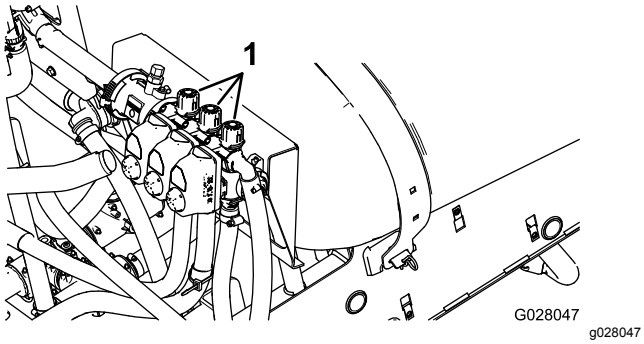

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Figure 74

1. Boom-bypass adjustment

11. Turn on the left boom and turn off the right boom.
12. Adjust the right boom bypass valve (Figure 74) until the pressure reading is at the previously adjusted level (typically 40 psi or 2.75 bar).
13. Turn on the right boom and turn off the center boom.
14. Adjust the center boom bypass valve (Figure 74) until the pressure reading is at the previously adjusted level (typically 40 psi or 2.75 bar).
15. Turn all the booms off.
16. Turn the pump off.

    Note: Calibration is now complete.

Agitation Bypass Valve Knob Positions

- The agitation bypass valve is in the full Open position as shown in A of Figure 75.
- The agitation bypass valve is in the Close (0) position as shown in B of Figure 75.
- The agitation bypass valve is in an intermediate (adjusted relative to the pressure gauge for the sprayer system) position as shown in C of Figure 75.

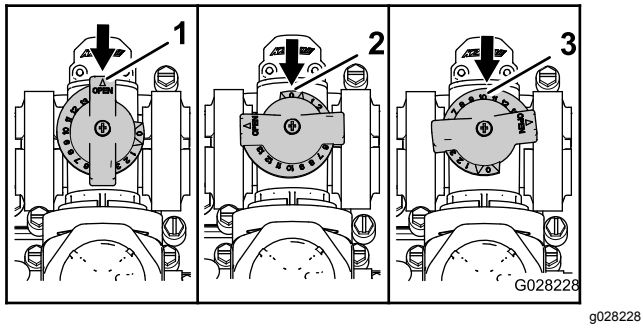

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Figure 75

1. Open
2. Closed (0)
3. Intermediate position

Calibrating the Agitation Bypass Valve

Service Interval: Yearly

Important: **Select an open flat area to perform this procedure.**

Note: Calibrating the agitation bypass valve for **machines without a throttle lock** requires 2 people.

1. Ensure that the sprayer tank is filled with water.
2. Verify the agitation control valve is open. If it has been adjusted, open it completely at this time.
3. Set the transmission as follows:
   - For HD-Series Models with a **manual transmission**—shift the transmission to Neutral
   - For the **HDX-Auto model**—shift the transmission to P (park).
4. Set the parking brake and turn the engine on.
5. Set the PUMP switch to the On position.
6. Set the engine speed as follows:
   - For machines **without** the optional throttle lock—have 1 person press down on the accelerator pedal until maximum engine speed is reached.

     Note: The other person will collect samples from the sprayer nozzles.
   - For machines **with** the optional throttle lock, press down on the accelerator pedal until maximum engine speed is reached and set the throttle lock; refer to operation instructions for your Workman hand throttle kit.
7. Set the 3 individual boom valves to the Off position.
8. Set the MASTER BOOM switch to the On position.
9. Set the system pressure to Maximum.
10. Press the AGITATION switch to the Off position and read the pressure gauge.
    - If the reading remains at 6.9 bar (100 psi) the agitation bypass valve is properly calibrated.
    - If the pressure gauge reads differently continue to the next step.
11. Adjust the agitation bypass valve (Figure 76) on the backside of the agitation valve until the pressure reading on the gauge is 6.9 bar (100 psi).

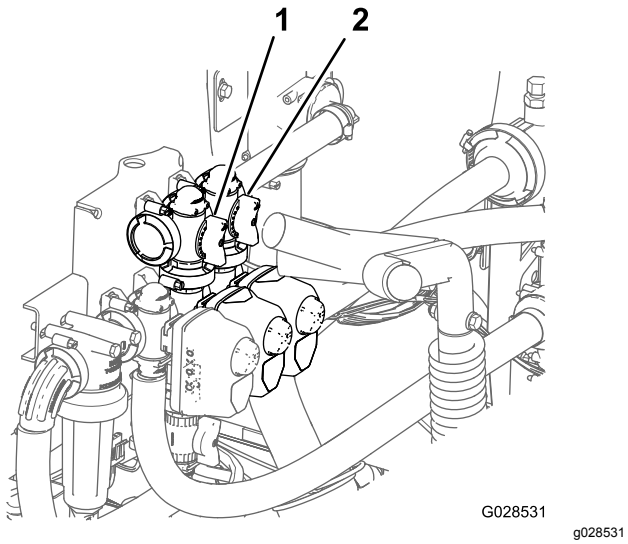

Figure 76

1. Agitation bypass valve
2. Master boom bypass

12. Press the PUMP switch to the Off position, shift the throttle lever to the Idle position, and turn the IGNITION switch Off.

Adjusting the Master Boom Bypass Valve

Note: Adjusting the master boom bypass valve reduces or increases the amount of flow sent to the agitation nozzles in the tank when the MASTER BOOM switch is set to the Off position.

1. Ensure that the sprayer tank is filled with water.
2. Set the parking brake.
3. Set the transmission as follows:
   - For HD-Series Models with a **manual transmission**—shift the transmission to Neutral
   - For the **HDX-Auto model**—shift the transmission to P (park).
4. Set the PUMP switch to the On position.
5. Set the AGITATION switch to the On position.
6. Set the MASTER BOOM switch to the Off position.
7. Set the engine speed as follows:
   - For machines **without** the optional throttle lock—have 1 person press down on the accelerator pedal until maximum engine speed is reached.

     Note: The other person will collect samples from the sprayer nozzles.
   - For machines **with** the optional throttle lock, press down on the accelerator pedal until maximum engine speed is reached and set the throttle lock; refer to operation instructions for your Workman hand throttle kit.
8. Adjust the master boom bypass handle to control the amount of agitation occurring in the tank (Figure 76).
9. Reduce the throttle speed to idle.
10. Set the AGITATION switch and PUMP switch to the Off position.
11. Shut off the machine.

Maintenance

Note: Looking for an *Electrical Schematic* or *Hydraulic Schematic* for your machine? Download a free copy of the schematic by visiting www.Toro.com and searching for your machine from the Manuals link on the home page.

Note: Determine the left and right sides of the machine from the normal operating position.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	• Clean the suction strainer. • Check the tank straps.
Every 50 hours	• Lubricate the pump.
Every 100 hours	• Lubricate the grease fittings. • Lubricate the boom hinges.
Every 200 hours	• Inspect all hoses and connections for damage and proper attachment. • Clean the flowmeter (More often when using wettable powders).
Every 400 hours	• Inspect the O-rings in the valve assemblies and replace them if necessary. • Change the pressure filter. • Inspect the pump diaphragm and replace if necessary • Inspect the pump check valves and replace if necessary • Inspect the nylon pivot bushings.
Yearly	• Flush the sprayer with clean water. • Calibrate the agitation bypass valve.

Important: **Refer to the *Operator's Manual* for your machine and the owner's manual for the engine for additional maintenance procedures.**

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of:						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Check the brake and parking brake operation.							
Check the gear shift/neutral operation.							
Check the fuel level.							
Check the engine oil level before filling the tank.							
Check the transaxle oil level before filling the tank.							
Inspect the air filter before filling the tank.							
Inspect the engine cooling fins before filling the tank.							
Check any unusual engine noises.							
Check any unusual operating noises.							
Check the tire pressure.							
Check for fluid leaks.							
Check the instrument operation.							
Check the accelerator operation.							
Clean the suction strainer.							
Check toe-in.							
Lubricate all grease fittings.[1]							
Touch up and damaged paint.							

[1]Immediately after **every** washing, regardless of the interval listed

Notation for Areas of Concern

Inspection performed by:		
Item	**Date**	**Information**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

⚠ CAUTION

If you leave the key in the ignition switch, someone could accidently start the engine and seriously injure you or bystanders.

Remove the key from the ignition and disconnect the wire(s) from the spark plug(s) before you do any maintenance. Set the wire(s) aside so that it does not accidentally contact the spark plug(s).

Pre-Maintenance Procedures

Accessing the Machine

Raising the Tank Assembly

⚠ DANGER

The sprayer tank assembly represents a stored energy hazard. If not properly retained when installing or removing the assembly, it can move or fall and injure you or other bystanders.

Use straps and an overhead lift to support the sprayer tank assembly during installation, removal, or any maintenance when the retaining fasteners are being removed.

An empty tank assembly can be tipped or raised up to allow full access to the engine and other internal components. Pivot the boom extension forward to distribute the weight more evenly. Use the following procedure:

1. Park the vehicle with an **empty** tank on a level surface.
2. Use the BOOM-CONTROL switches to raise the boom extension to approximately 45°.
3. Stop the machine, engage the parking brake, and remove the key.
4. Remove the safety bolts from the front of the skid (Figure 77).

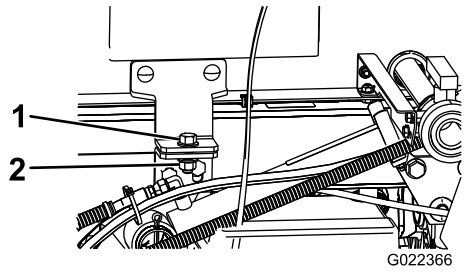

Figure 77

1. Bolt (1/2 x 1-1/2 inches) 2. Locknut (1/2 inch)

5. Fold the boom extensions forward, alongside the tank assembly to distribute the weight more evenly, and keep it from tipping backward.
6. Raise the tank assembly until the lift cylinders are fully extended.
7. Remove the bed support from the storage brackets on back of the ROPS panel (Figure 78).

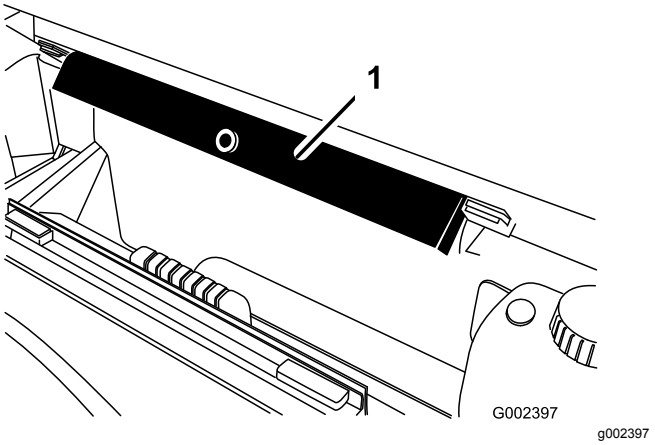

Figure 78

1. Bed support

8. Push the bed support onto the cylinder rod, making sure that the support end tabs rest on the end of cylinder barrel and on the rod end of the lift cylinder (Figure 79).

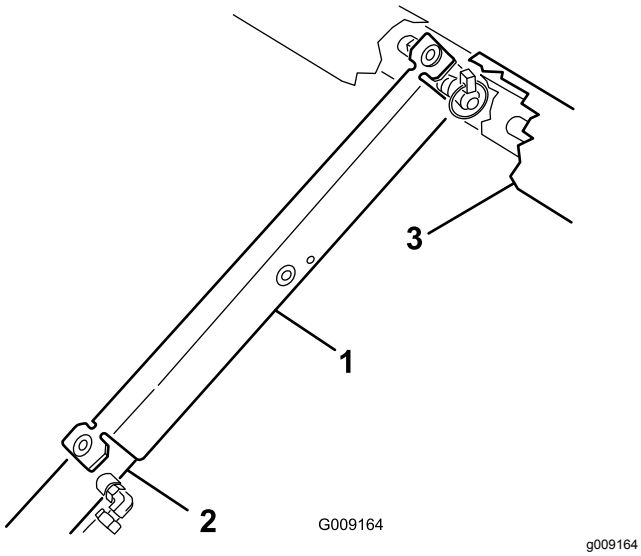

Figure 79

1. Bed support
2. Cylinder barrel
3. Bed

Lowering the Tank Assembly

1. When you are ready to lower the tank assembly, remove the bed support from the cylinder and insert it into the brackets on the back of the ROPS panel.

   ⚠ CAUTION

   Do not try to lower the tank assembly with the bed safety support on the cylinder.

2. Retract the lift cylinders to carefully lower the tank to the frame.
3. Install the 2 hold down bolts and fasteners to secure the tank assembly.
4. Fold the boom extensions rearward to the extended position.
5. Use the BOOM-CONTROL switches to raise the boom extensions to the transport position.

Lubrication

Greasing the Sprayer System

Service Interval: Every 50 hours

Every 100 hours

Lubricate all bearings and bushings after every 100 hours or once a year, whichever occurs first.

Grease Type: Number 2 general-purpose, lithium-based grease

1. Wipe the grease fitting clean so that foreign matter cannot be forced into the bearing or bushing.
2. Pump grease into the bearing or bushing.
3. Wipe off the excess grease.

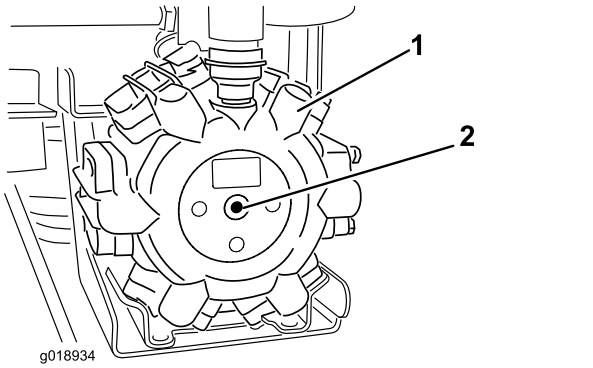

Figure 80

1. Pump
2. Grease point

Greasing the Boom Hinges

Service Interval: Every 100 hours

Important: **If the boom hinge is washed with water, all water and debris must be cleared from the hinge assembly and fresh grease must be applied.**

Grease Type: No. 2 general-purpose, lithium-based grease.

1. Wipe the grease fittings clean so that foreign matter cannot be forced into the bearing or bushing.
2. Pump grease into the bearing or bushing at each fitting Figure 81.

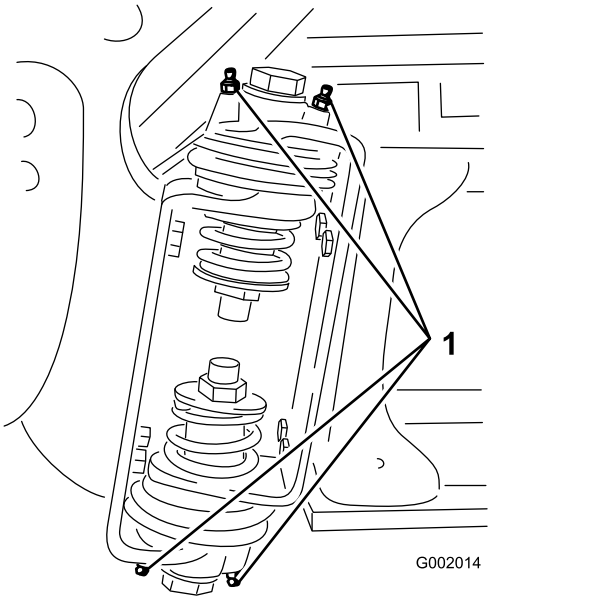

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Figure 81
Right boom

1. Grease fitting

3. Wipe off excess grease.
4. Repeat this procedure for each boom pivot.

Spray System Maintenance

⚠ WARNING

Chemical substances used in the spray system may be hazardous and toxic to you, bystanders, animals, plants, soils or other property.

- **Carefully read and follow the chemical warning labels and Material Safety Data Sheets (MSDS) for all chemicals used, and protect yourself according to the chemical manufacturer's recommendations. For example, use appropriate Personal Protective Equipment (PPE) including face and eye protection, gloves, or other equipment to guard against personal contact with the chemical.**
- **Keep in mind there may be more than 1 chemical used and information on each should be assessed.**
- ***Refuse to operate or work on the sprayer if this information is not available!***
- **Before working on a spray system make sure the system has been triple rinsed and neutralized according to the recommendations of the chemical manufacturer(s) and all of the valves have been cycled 3 times.**
- **Verify that there is an adequate supply of clean water and soap nearby, and immediately wash off any chemicals that contact you.**

Inspecting the Hoses

Service Interval: Every 200 hours

Every 400 hours/Yearly (whichever comes first)

Examine each hose in the spray system for cracks, leaks, or other damage. At the same time, inspect the connections and fittings for similar damage. Replace any hoses and fittings if they are damaged.

Changing the Pressure Filter

Service Interval: Every 400 hours

1. Move the machine to a level surface, shut off the sprayer pump, shut off the engine, and remove the key from the STARTER switch.
2. Align a drain pan under the pressure filter (Figure 82).

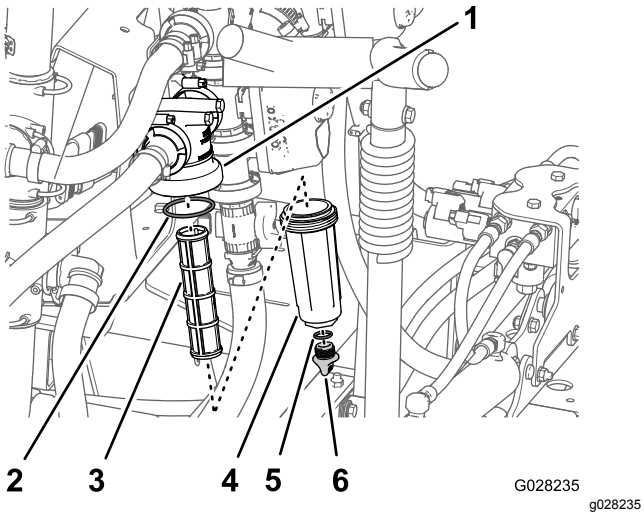

Figure 82

1. Filter head
2. O-ring (bowl)
3. Filter element
4. Bowl
5. O-ring (drain plug)
6. Drain plug

3. Rotate the drain plug counterclockwise and remove it from the bowl of the pressure filter (Figure 82).

   Note: Allow the bowl to drain completely.
4. Rotate the bowl counterclockwise and remove it filter head (Figure 82).
5. Remove the old pressure filter element (Figure 82).

   Note: Discard the old filter.
6. Check the O-ring for the drain plug (located inside the bowl) and the O-ring for bowl (located inside the filter head) for damage and wear (Figure 82).

   Note: Replace any damaged or worn O-rings for the plug, bowl, or both.
7. Install the new pressure filter element into the filter head (Figure 82).

   Note: Ensure that the filter element is firmly seated into the filter head.
8. Install the bowl onto the filter head hand tight (Figure 82).
9. Install the plug into the bowl hand tight (Figure 82).

Inspecting the Sprayer Pump

Service Interval: Every 400 hours/Yearly (whichever comes first)—Inspect the pump diaphragm and replace if necessary (see an Authorized Toro Service Distributor).

Every 400 hours/Yearly (whichever comes first)—Inspect the pump check valves and replace if necessary (see an Authorized Toro Service Distributor).

Note: The following machine components are considered parts subject to consumption through use unless found defective and are not covered by the Warranty associated with this machine.

Have an Authorized Toro Service Distributor check following internal pump components for damage:

- Pump diaphragm
- Pump check valves assemblies

Replace any components if necessary.

Adjusting the Booms to Level

The following procedure can be used to adjust the actuators on the center boom to keep the left and right booms at level.

1. Extend the booms to the spray position.
2. Remove the cotter pin from the pivot pin (Figure 83).

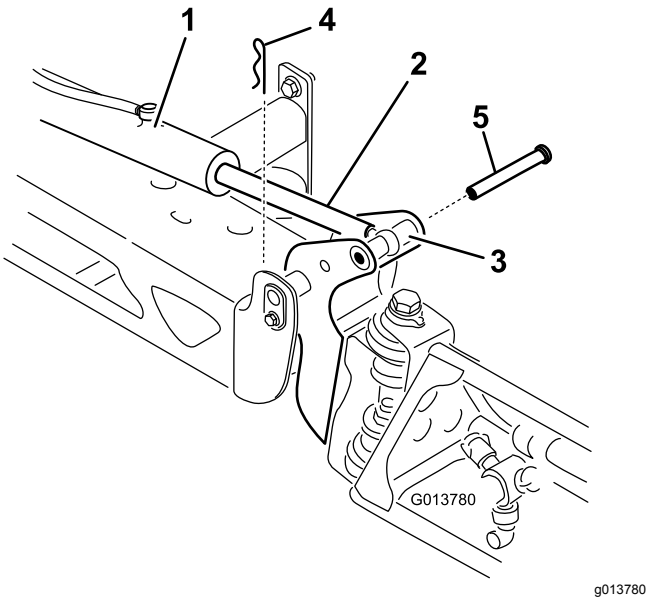

Figure 83

1. Actuator
2. Actuator rod
3. Boom-pivot pin housing
4. Cotter
5. Pin

3. Lift up on the boom and remove the pin (Figure 83), and slowly lower the boom to the ground.
4. Inspect the pin for any damage, and replace it if necessary.
5. Use a wrench on the flat sides of the actuator rod to immobilize it, then loosen the jam nut to allow the eyelet rod to be manipulated (Figure 84).

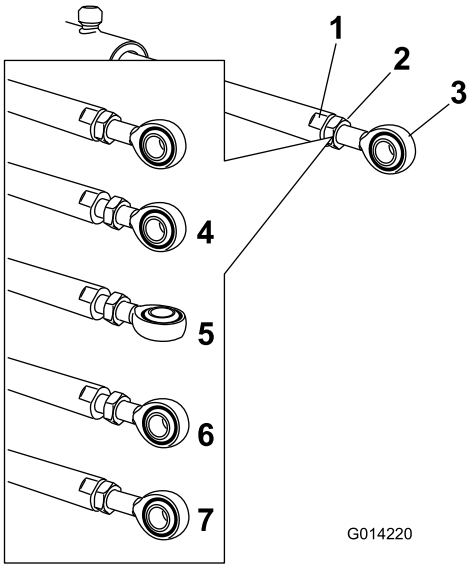

Figure 84

1. Flat on the actuator rod
2. Jam nut
3. Eyelet
4. Jam nut loosened
5. Eyelet adjusted
6. Eyelet position for assembly
7. Jam nut tightened to lock new position

6. Turn the eyelet rod in the actuator rod to shorten or lengthen the extended actuator to the desired position (Figure 84).

   Note: You must turn the eyelet rod in half or complete revolutions so that you can assemble the rod to the boom.
7. Once the desired position has been achieved, tighten the jam nut to secure the actuator and eyelet rod.
8. Raise the boom to align the pivot with the actuator rod.
9. While holding the boom, insert the pin through both boom pivot and actuator rod (Figure 83).
10. With the pin in place, release the boom and secure the pin with the cotter previously removed.
11. Repeat the procedure for each actuator rod bearing, if necessary.

Inspecting the Nylon Pivot Bushings

Service Interval: Every 400 hours/Yearly (whichever comes first)

1. Position the sprayer on a level surface, set the parking brake, stop the pump, stop the engine, and remove the ignition key.
2. Extend the booms to the spray position and support the booms using stands or straps from a lift.
3. With the weight of the boom supported, remove the bolt and nut securing the pivot pin to the boom assembly (Figure 85).

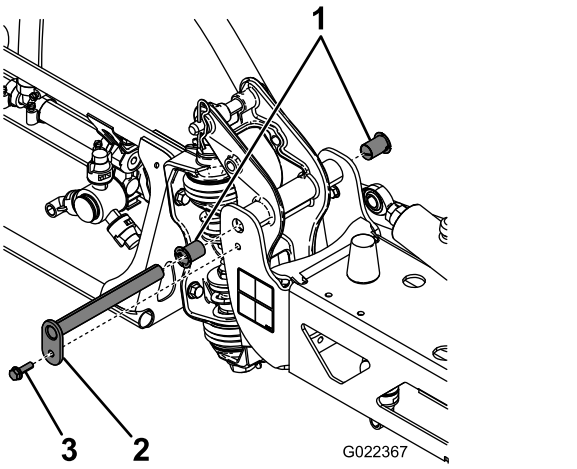

Figure 85

1. Nylon bushings
2. Pivot pin
3. Bolt

4. Remove the pivot pin.
5. Remove the boom and pivot bracket assembly from the center frame to access the nylon bushings.
6. Remove and inspect the nylon bushings from the front and back sides of the pivot bracket (Figure 85).

   Note: Replace any damaged bushings.
7. Place a small amount of oil on the nylon bushings, and install them into pivot bracket.
8. Install the boom and pivot bracket assembly into the center frame, aligning the openings (Figure 85).
9. Install the pivot pin and secure it with the bolt and nut removed previously.

Repeat this procedure for each boom.

Cleaning

Cleaning the Flowmeter

Service Interval: Every 200 hours/Yearly (whichever comes first) (More often when using wettable powders).

1. Thoroughly rinse and drain the entire spraying system.
2. Remove the flowmeter from the sprayer and flush it with clean water.
3. Remove the retainer ring on the upstream side (Figure 86).

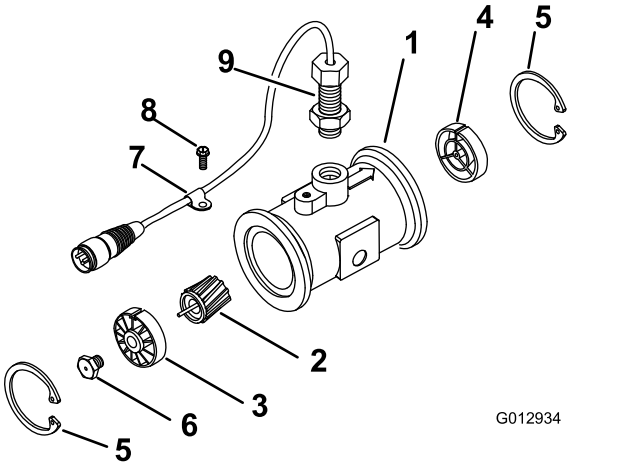

Figure 86

1. Modified flanged body
2. Rotor/magnet assembly
3. Hub/bearing assembly
4. Hub assembly (with keyway up)
5. Retaining ring
6. Turbine-stud assembly
7. Cable clamp
8. Thread screw
9. Sensor assembly
10. Flow-reducing sleeve

4. Clean the turbine and the turbine hub to remove metal filings and any wettable powders.
5. Inspect the turbine blades for wear.

   Note: Hold the turbine in your hand and spin it. It should spin freely with very little drag. If it does not, replace it.
6. Assemble the flowmeter.
7. Use a low pressure (5 psi or 50 kPa) air jet to ensure that the turbine spins freely.

   Note: If the turbine does not spin freely, loosen the hex stud on the bottom of the turbine hub by 1/16 of a turn until it does spins freely.

Cleaning the Sprayer Valves

- To clean the rate control valve, refer to the following sections:
  1. Removing the Valve Actuator (page 66)
  2. Removing the Rate Control Manifold Valve (page 67)
  3. Cleaning the Manifold Valve (page 70)
  4. Assembling the Manifold Valve (page 71)
  5. Installing the Rate Control Manifold Valve (page 72)
  6. Installing the Valve Actuator (page 75)
- To clean the agitation valve; refer to the following sections:
  1. Removing the Valve Actuator (page 66)
  2. Removing the Agitation Manifold Valve (page 67)
  3. Cleaning the Manifold Valve (page 70)
  4. Assembling the Manifold Valve (page 71)
  5. Installing the Agitation Manifold Valve (page 72)
  6. Installing the Valve Actuator (page 75)
- To clean the master boom valve, refer to the following sections:
  1. Removing the Valve Actuator (page 66)
  2. Removing the Master Boom Manifold Valve (page 68)
  3. Cleaning the Manifold Valve (page 70)
  4. Assembling the Manifold Valve (page 71)
  5. Installing the Master Boom Manifold Valve (page 73)
  6. Installing the Valve Actuator (page 75)
- To clean the 3 section valves; refer to the following sections:
  1. Removing the Valve Actuator (page 66)
  2. Removing the Section Manifold Valve (page 69)
  3. Cleaning the Manifold Valve (page 70)
  4. Assembling the Manifold Valve (page 71)
  5. Installing the Section Manifold Valve (page 74)
  6. Installing the Valve Actuator (page 75)

Removing the Valve Actuator

1. Position the sprayer on a level surface, set the parking brake, stop the pump, stop the engine, and remove the key from the STARTER switch.
2. Remove the 3-pin connector of the valve actuator from the 3 socket electrical connector of the sprayer harness.
3. Remove the retainer that secures the a actuator to the manifold valve for the rate control, agitation, master boom, or boom section valve (Figure 87).

   Note: Squeeze the 2 legs of the retainer together while pushing it down.

   Note: Retain the actuator and retainer for installation in Installing the Valve Actuator (page 75).

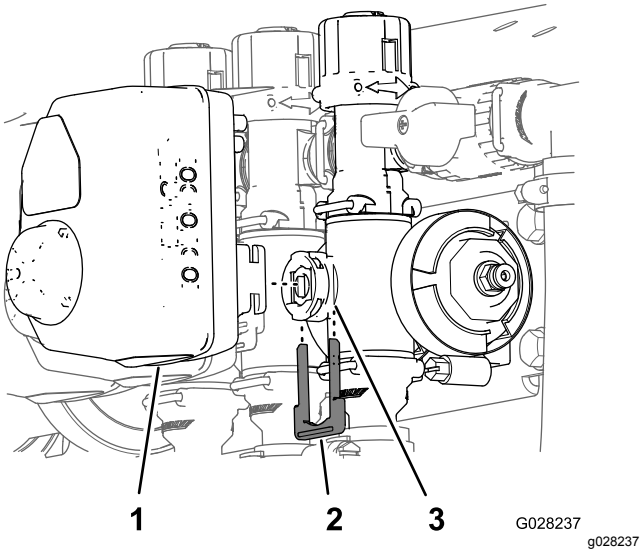

Figure 87

Section Valve Actuator shown (the agitation valve actuator is similar)

1. Valve actuator (section valve shown)
2. Retainer
3. Stem port

4. Remove the actuator from the manifold valve.

Removing the Rate Control Manifold Valve

1. Remove clamps and gaskets that secure the manifold for the rate control valve (Figure 88).

   Note: Retain the clamp(s) and gasket(s) for installation in Installing the Rate Control Manifold Valve (page 72).

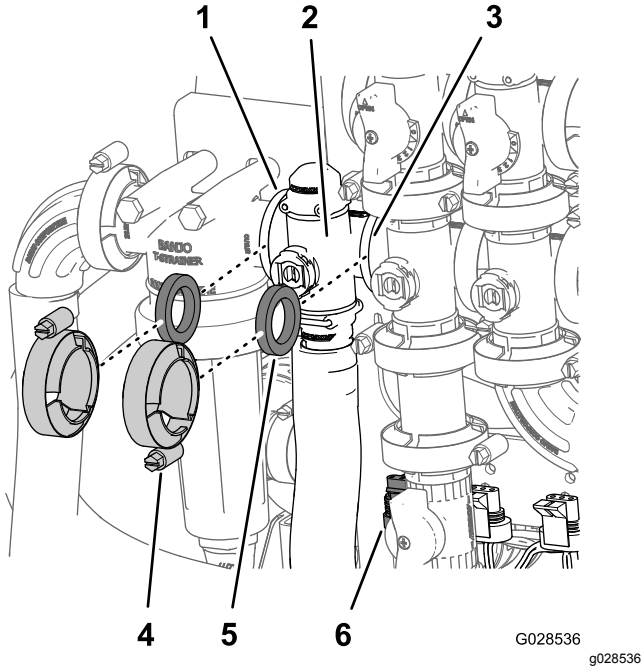

Figure 88

1. Flange (pressure filter head)
2. Manifold (rate control valve)
3. Flange (agitation valve)
4. Clamp
5. Gasket
6. 3-pin connector (valve actuator—rate control valve)

2. Remove the retainer that secure the outlet fitting to the manifold for the rate control valve (Figure 89).

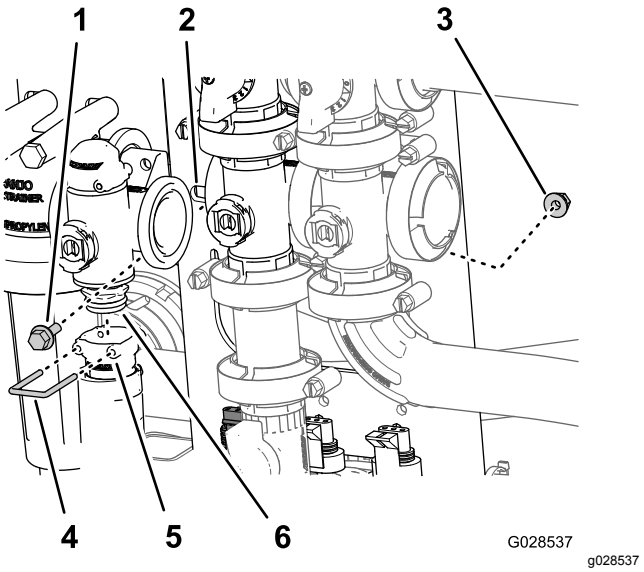

Figure 89

1. Flanged-head bolt
2. Valve mount
3. Flanged locknut
4. Retainer
5. Socket (outlet fitting)
6. Manifold-valve assembly

3. Remove the 2 flanged-head bolts and 2 flanged locknuts that secure the rate control valve to the valve mount and remove the valve manifold from the machine (Figure 89).

   Note: If necessary, loosen the mounting hardware for the pressure filter head to ease removal of the rate control valve..

Removing the Agitation Manifold Valve

1. Remove clamps and gaskets that secure the manifold for the agitation valve (Figure 90) to the agitation bypass valve, rate control valve, master boom valve, and adapter fitting (agitation throttle valve).

   Note: Retain the clamp(s) and gasket(s) for installation in Installing the Agitation Manifold Valve (page 72).

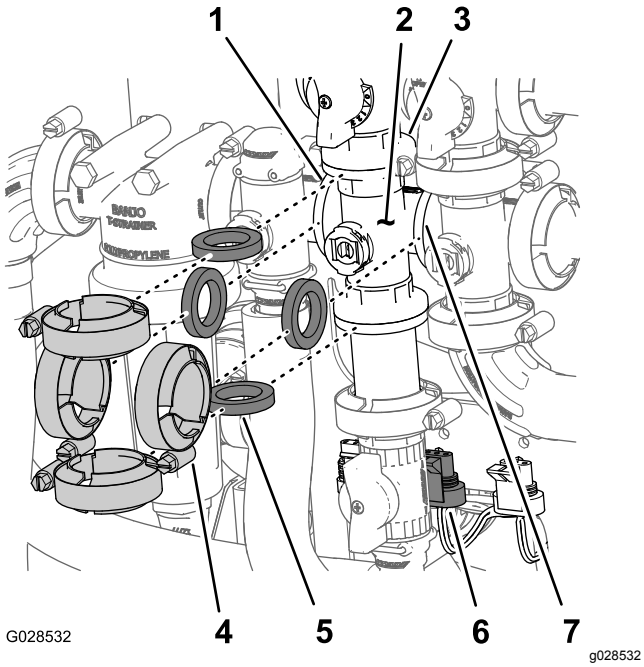

Figure 90

1. Flange (pressure filter head)
2. Manifold (agitation valve)
3. Flange (bypass valve—agitation valve)
4. Clamp
5. Gasket
6. 3-pin connector (valve actuator—agitation valve)
7. Flange (master boom valve)

2. Remove the flanged-head bolt and flanged locknut that secures the agitation valve to the valve mount and remove the valve manifold from the machine (Figure 91).

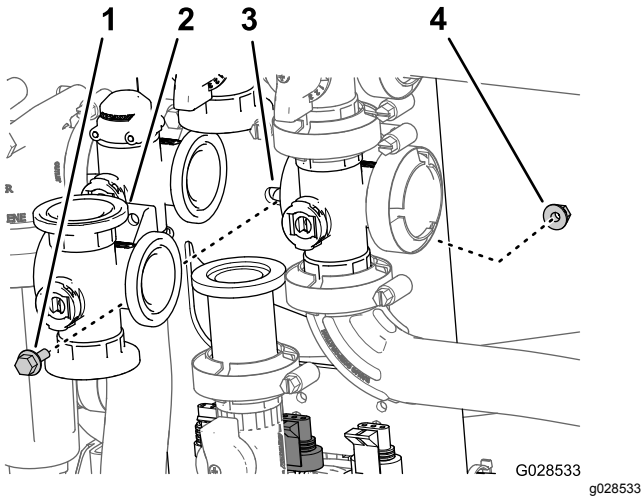

Figure 91

1. Flanged-head bolt
2. Manifold (agitation valve)
3. Valve mount
4. Flanged locknut

Removing the Master Boom Manifold Valve

1. Remove clamps and gaskets that secure the manifold for the master boom valve (Figure 92) to the master boom bypass valve, agitation valve, and 90° flanged elbow (at the end of the hose for the flow meter).

   Note: Retain the clamp(s) and gasket(s)for installation in Installing the Master Boom Manifold Valve (page 73).

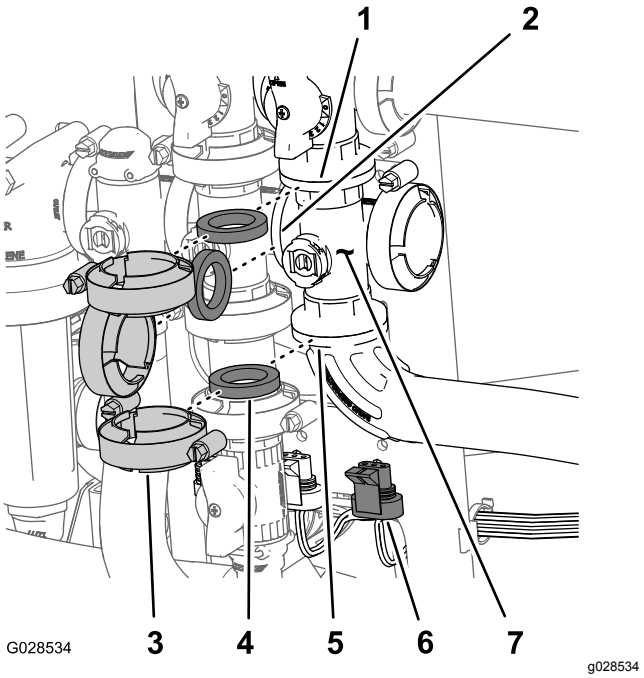

Figure 92

1. Flange (bypass—master boom valve)
2. Flange (agitation valve)
3. Clamp
4. Gasket
5. 90° flanged elbow
6. 3-pin connector (valve actuator—master boom valve)
7. Manifold (master boom valve)

2. Remove the flanged-head bolt and flanged locknut that secure the master boom valve to the valve mount and remove the valve manifold from the machine (Figure 93).

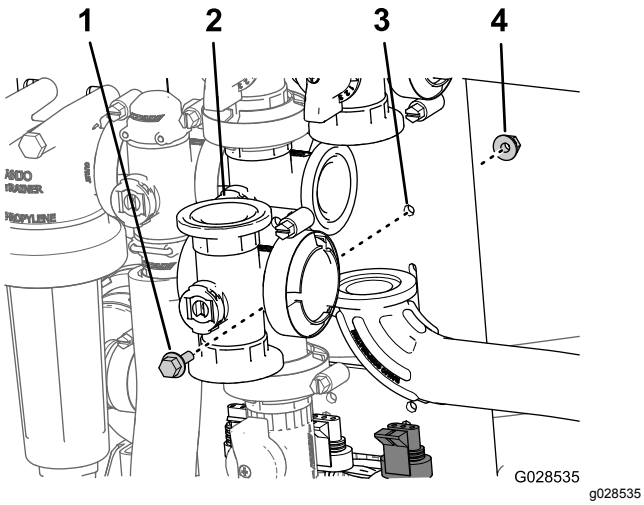

Figure 93

1. Flanged-head bolt
2. Manifold (master boom valve)
3. Valve mount
4. Flanged locknut

Removing the Section Manifold Valve

1. Remove clamps and gaskets that secure the manifold for the section valve (Figure 94) to the adjacent section valve (if left section valve, and the reducer coupling).

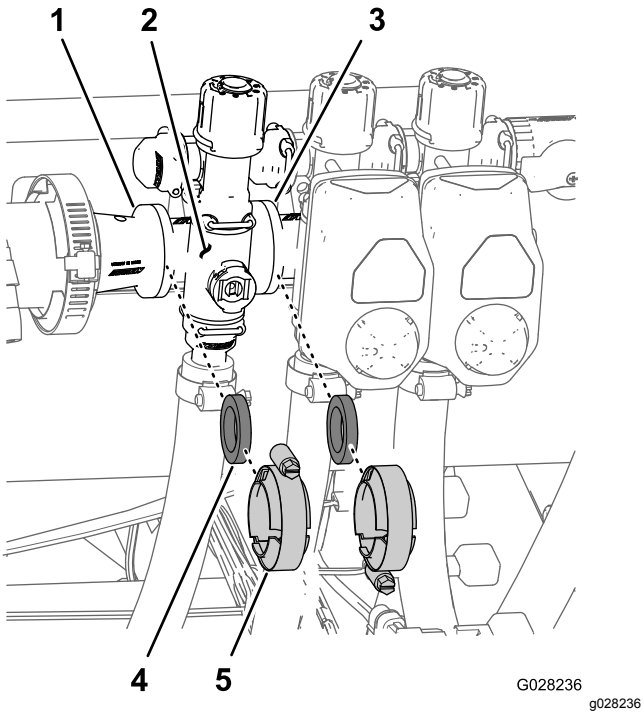

Figure 94

1. Flange (reducer coupling)
2. Manifold (section valve)
3. Flange (adjacent section valve)
4. Gasket
5. Flange clamp

2. Remove the retainers that secure the outlet fitting to the section valve manifold and the valve manifold to the bypass fitting (Figure 95).

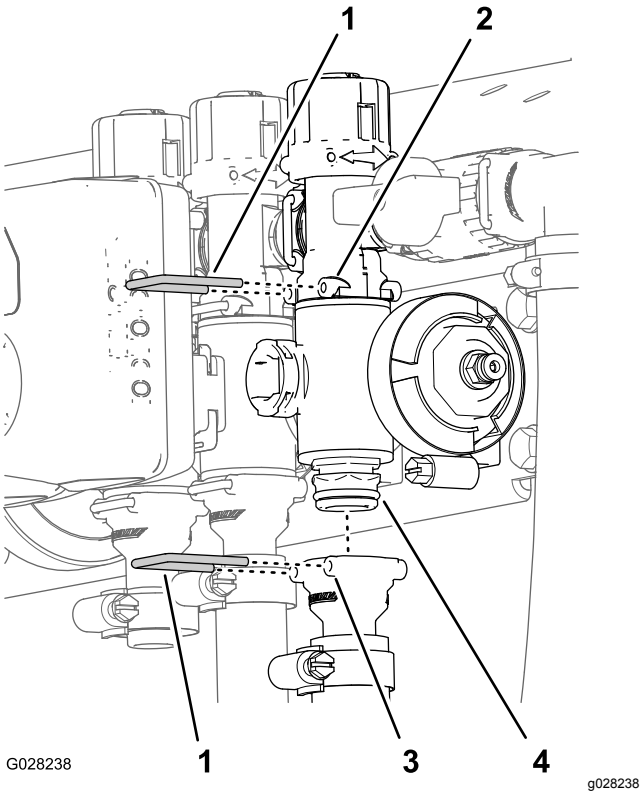

Figure 95

1. Retainer
2. Socket (bypass fitting)
3. Socket (outlet fitting)
4. Manifold valve assembly

3. For the left or right boom section valves, remove the flanged-head bolts and flanged locknuts that secure the section valve(s) to the valve mount and remove the valve manifold(s) from the machine; for the center section valve, remove the section valve manifold from the machine (Figure 96).

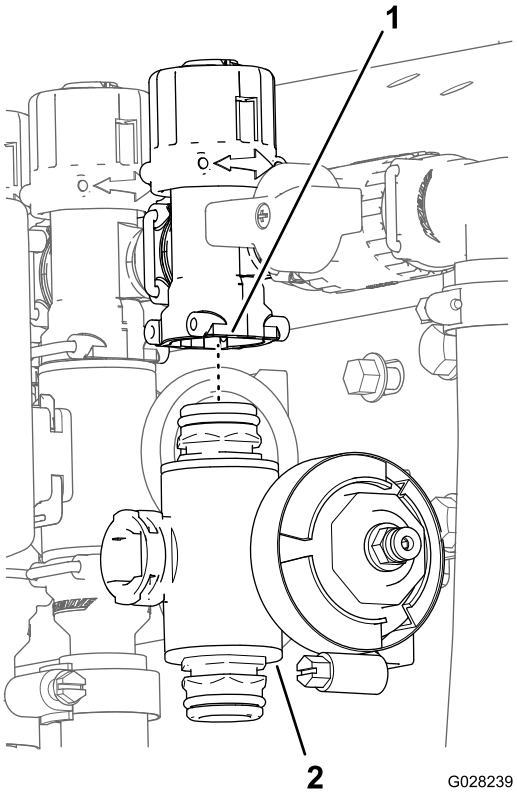

Figure 96

1. Bypass fitting
2. Section valve manifold

Cleaning the Manifold Valve

1. Position the valve stem so that it is in the closed position (B of Figure 97).

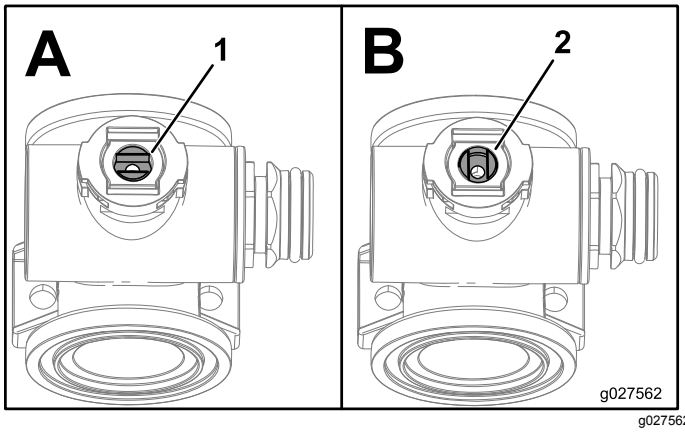

Figure 97

1. Valve open
2. Valve closed

2. Remove the 2 endcap-fitting assembies from each end of the manifold body (Figure 98 and Figure 99).

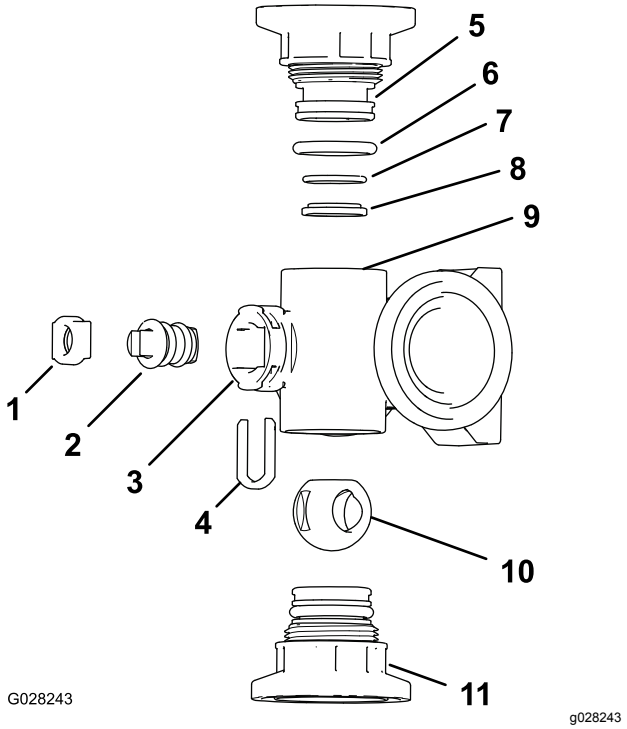

Figure 98

Agitation Valve Manifold

1. Stem retainer
2. Valve stem
3. Stem port
4. Stem-capture retainer
5. Endcap fitting
6. Endcap seal O-ring (0.796 inch / 0.139 inch)
7. Back seating O-ring (0.676 inch / 0.07 inch)
8. Valve-seat ring
9. Mainfold body
10. Ball valve
11. Endcap-fitting assembly

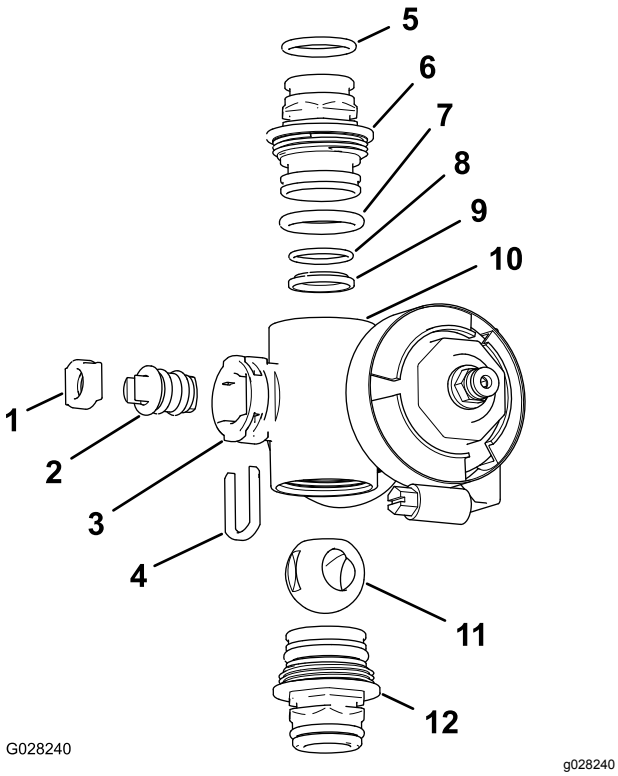

Figure 99

Section Valve Manifold

1.	Valve-stem seat	7.	Endcap O-ring (0.796 inch / 0.139 inch)
2.	Valve-stem assembly	8.	Back seating O-ring (0.676 inch / 0.07 inch)
3.	Stem port	9.	Ball seat
4.	Stem retainer	10.	Mainfold body
5.	Outlet fitting O-ring (0.737 inch / 0.103 inch)	11.	Ball valve
6.	Endcap fitting	12.	Endcap-fitting assembly

3. Turn the valve stem so that the ball is in the open position (A of Figure 97).

   Note: The valve stem will be parallel with the valve flow and the ball will slide out.

4. Remove the stem retainer from the slots in the stem port in the manifold (Figure 98 and Figure 99).
5. Remove the stem retainer and valve stem seat from the manifold (Figure 98 and Figure 99).
6. Reach into the manifold body and remove the valve-stem assembly (Figure 98 and Figure 99).
7. Clean the inside of the manifold and exterior of the ball valve, valve-stem assembly, stem capture, and end fittings.

Assembling the Manifold Valve

1. Check the condition of the outlet fitting O-rings (section valve manifold only), endcap O-rings, back seating O-rings, ball seat for damage or wear (Figure 98 and Figure 99).

   Note: Replace any damaged or worn O-rings or seats.

2. Apply grease to the valve stem and insert it into the valve stem seat (Figure 98 and Figure 99).
3. Install the valve stem and seat into the manifold and secure the stem and seat with the stem retainer (Figure 98 and Figure 99).
4. Ensure that the back seating O-ring and the ball seat are aligned and seated into the endcap fitting (Figure 98 and Figure 99)
5. Install the endcap fitting assembly onto the manifold body until the flange of the endcap fitting touches the manifold body (Figure 98 and Figure 99), then turn the endcap fitting an additional 1/8 to 1/4 turn.

   Note: Use caution so as not to damage the end of the fitting.

6. Insert the ball into the valve body (Figure 100).

   Note: The valve stem should fit inside the ball drive slot. If the valve stem does not fit, adjust the position of the ball (Figure 100).

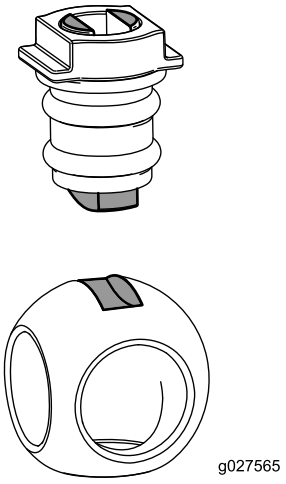

Figure 100

7. Turn the valve stem assembly so that the valve is closed (B of Figure 97)
8. Repeat steps 4 and 5 for the other endcap fitting assembly.

Installing the Rate Control Manifold Valve

1. Align a gasket between the flanges of the rate control valve manifold and the pressure filter head (A of Figure 101).

   Note: If needed, loosen the mounting hardware for the pressure filter head as needed to provide clearance.

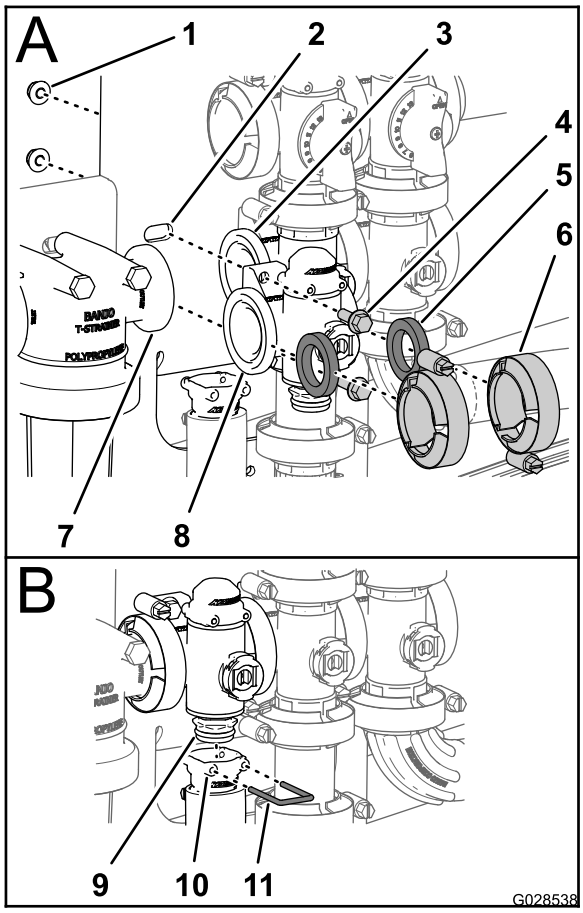

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Figure 101

1. Locknut	5. Gasket	9. Manifold valve assembly
2. Valve mount	6. Clamp	10. Socket (outlet fitting)
3. Flange (agitation valve)	7. Flange (pressure filter head)	11. Retainer
4. Flanged-head bolt	8. Flange (rate control valve)	

2. Assemble the rate control valve manifold, gasket, and pressure filter head with a clamp and tighten by hand (A of Figure 101).
3. Align a gasket between the flanges of the rate control valve and the agitation valve manifold (A of Figure 101).
4. Assemble the rate control valve manifold, gasket, and agitation valve manifold with a clamp and tighten by hand (A of Figure 101).
5. Assemble the rate control valve to the valve mount with the 2 flanged-head bolts and 2 flanged locknuts (A of Figure 101) that you removed in step 3 of Removing the Rate Control Manifold Valve (page 67) and torque the nut and bolt to 1017 to 1243 N-cm (90 to 110 in-lb).
6. Assemble the outlet fitting onto the lower endcap fitting of the manifold valve (B of Figure 101).
7. Secure the endcap fitting to the outlet fitting by inserting a retainer into the socket of the outlet fitting (B of Figure 101).
8. If you loosened the mounting hardware for the pressure filter head, tighten the nut and bolt to 1978 to 2542 N-cm (175 to 225 in-lb).

Installing the Agitation Manifold Valve

1. Align the flange of the agitation valve manifold, a gasket, and the flange of the agitation bypass valve (A of Figure 102).

   Note: If needed, loosen the mounting hardware for the master boom valve as needed to provide clearance.

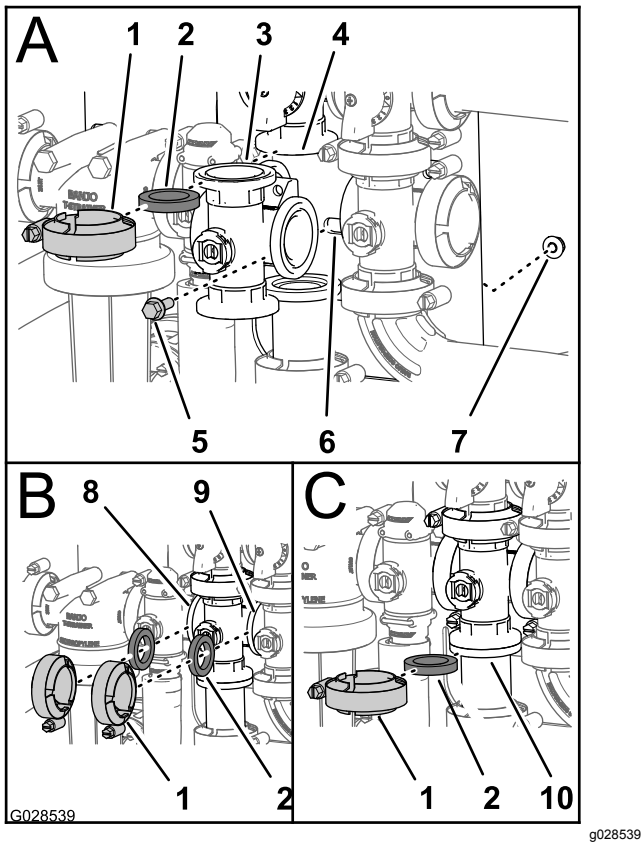

Figure 102

1.	Flange clamp	5.	Flanged-head bolt	9.	Flange (master boom valve)
2.	Gasket	6.	Valve mount	10.	Flange (adapter fitting—agitation throttle valve)
3.	Manifold (agitation valve)	7.	Flanged locknut		
4.	Flange (manifold—agitation bypass valve)	8.	Flange (rate control valve)		

2. Assemble the agitation bypass valve, gasket, and agitation valve manifold with a clamp and tighten by hand (A of Figure 102).
3. Align a gasket between the flanges of the rate control valve and the agitation valve manifold (B of Figure 102).
4. Assemble the rate control valve, gasket, and agitation valve manifold with a clamp and tighten by hand (B of Figure 102).
5. Align a gasket between the flanges of the agitation valve manifold and the master boom valve (B of Figure 102).
6. Assemble the agitation valve manifold, gasket, and master boom valve with a clamp and tighten by hand (B of Figure 102).
7. Align a gasket between the flanges of the agitation valve manifold and the adapter fitting for the agitation throttle valve (C of Figure 102).
8. Assemble the agitation valve manifold, gasket, and adapter fitting with a clamp and tighten by hand (C of Figure 102).
9. Assemble the agitation valve to the valve mount with the flanged-head bolt and flanged locknut that you removed in step 2 of Removing the Agitation Manifold Valve (page 67) and torque the nut and bolt to 1017 to 1243 N-cm (90 to 110 in-lb).
10. If you loosened the mounting hardware for the master boom valve, tighten the nut and bolt to 1978 to 2542 N-cm (175 to 225 in-lb).

Installing the Master Boom Manifold Valve

1. Align the flange of the master-boom-valve manifold, a gasket, and the flange of the master boom bypass valve (A of Figure 103).

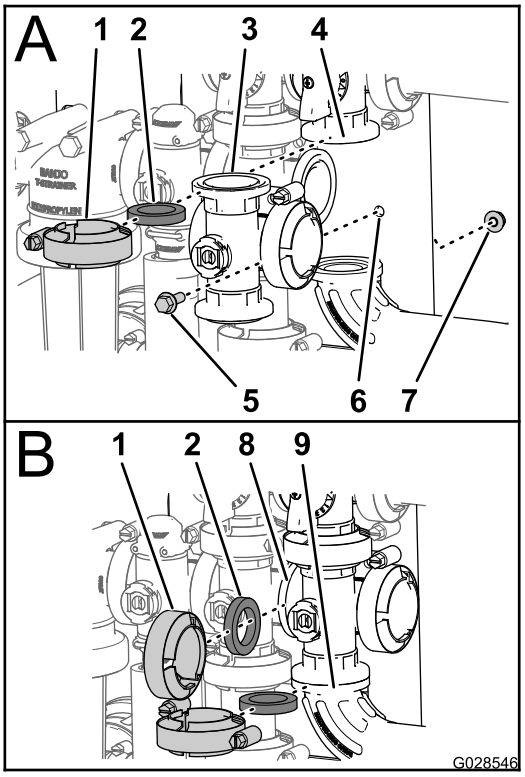

Figure 103

1.	Flange clamp	6.	Valve mount
2.	Gasket	7.	Flanged locknut
3.	Manifold (master boom valve)	8.	Flange (agitation valve)
4.	Flange (bypass —master boom valve)	9.	90° flanged elbow
5.	Flanged-head bolt		

2. Assemble the master-boom-valve manifold, gasket, and master boom bypass valve with a clamp tightened hand tight (A of Figure 103).
3. Align the flange of the master-boom-valve manifold, a gasket, and the agitation-valve manifold (B of Figure 103).
4. Assemble the master-boom-valve manifold, gasket, and agitation valve manifold with a clamp and tighten by hand (B of Figure 103)
5. Align the flange of the master-boom-valve manifold, a gasket, and the 90° flanged elbow (at the end of the hose for the flow meter; refer to B of Figure 103).
6. Assemble the master-boom-valve manifold, gasket, and 90° flanged elbow with a clamp and tighten by hand (B of Figure 103).
7. Assemble the agitation valve to the valve mount with the flanged-head bolt and flanged locknut that you removed in step 2 of Removing the Master Boom Manifold Valve (page 68)and torque the nut and bolt to 1017 to 1243 N-cm (90 to 110 in-lb).

Installing the Section Manifold Valve

1. Insert the upper endcap fitting of the manifold valve into the bypass fitting (A of Figure 104).

   Note: If needed, loosen the mounting hardware for the bypass fitting as needed to provide clearance.

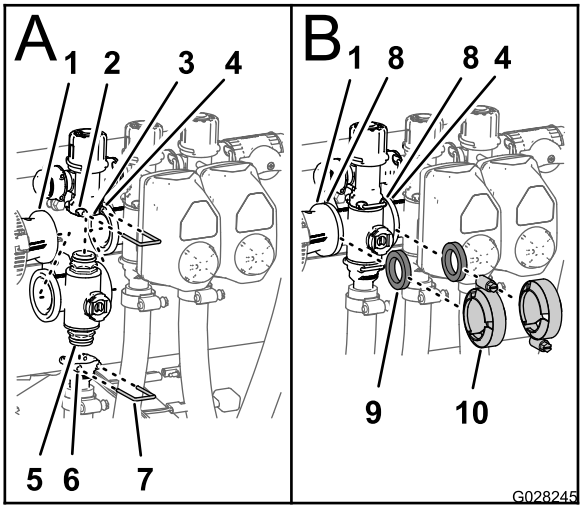

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Figure 104

1. Flange (reducer coupling)
2. Socket (bypass fitting)
3. Bypass fitting
4. Flange (adjacent manifold—agitation valve)
5. Endcap fitting (manifold valve assembly)
6. Socket (outlet fitting)
7. Retainer
8. Flange (manifold—section valve)
9. Gasket
10. Flange clamp

2. Secure the endcap fitting to the bypass fitting by inserting a retainer into the socket of the bypass fitting (A of Figure 104).
3. Assemble the outlet fitting onto the lower endcap fitting of the manifold valve (A of Figure 104).
4. Secure the endcap fitting to the outlet fitting by inserting a retainer into the socket of the outlet fitting (A of Figure 104)
5. Align a gasket between the flanges of the reducer coupling and the section valve manifold (B of Figure 104).
6. Assemble the reducer coupling, gasket, and section valve manifold with a clamp and tighten by hand (B of Figure 104).
7. If installing the 2 left most section valves, align a gasket between the flanges of the 2 adjacent section valve manifolds (B of Figure 104).
8. Assemble the and 2 adjacent section valve manifolds and gasket with a clamp and tighten by hand (B of Figure 104).
9. For the left or right boom section valves, assemble the valves to the valve mount with the flanged-head bolt and flanged locknut that you removed in step 3 of Removing the Section Manifold Valve (page 69) and torque the nuts and bolts to 1017 to 1243 N-cm (90 to 110 in-lb).

10. If you loosened the mounting hardware for the bypass fitting, tighten the nut and bolt to 1017 to 1243 N-cm (90 to 110 in-lb).

Installing the Valve Actuator

1. Align the actuator to the manifold valve and (Figure 87).
2. Secure the actuator and valve with the retainer that you removed in step 3 of Removing the Valve Actuator (page 66).
3. Connect the 3-pin connector of the valve actuator harness to the 3-socket connector of the wiring harness of the sprayer.

Storage

1. Position the sprayer on a level surface, set the parking brake, stop the pump, stop the engine, and remove the key from the STARTER switch.

   Note: For HD- and HDX-Series Workman models with a manual transmission, disengage the PTO
2. Clean dirt and grime from the entire machine, including the outside of the cylinder-head fins of the engine and blower housing.

   Important: **You can wash the machine with mild detergent and water. Do not use high-pressure water to wash the machine. Pressure washing may damage the electrical system or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, lights, engine, and the battery.**
3. Condition the sprayer system as follows:
   A. Drain the fresh water tank.
   B. Drain the spray system as completely as possible.
   C. Prepare rust inhibiting, non-alcohol based, RV antifreeze solution per the manufacturer's instructions.
   D. Add the RV antifreeze solution to the fresh water tank and the sprayer tank.
   E. Run the sprayer pump for a few minutes to circulate the RV antifreeze throughout the sprayer system and any installed spray accessories.
   F. Drain the fresh water tank and spray system as completely as possible.
4. Use the BOOM-LIFT switches to raise the booms. Raise the booms until have moved completely into boom transport cradle forming the “X” transport position and the boom cylinders are fully retracted.

   Note: Make sure that the boom cylinders are fully retracted to prevent actuator rod damage.
5. Perform the following maintenance steps for short-term or long-term storage
   - **Short-term storage** (less than 30 days), clean the sprayer system; refer to Cleaning the Sprayer (page 52).
   - **Long-term storage** (longer then 30 days), perform the following:
     A. Clean the sprayer valves; refer to Cleaning the Sprayer Valves (page 66).
     B. Grease the sprayer; refer to Lubrication (page 61).

C. Check and tighten all bolts, nuts, and screws.

Note: Repair or replace any parts that are worn or damaged.

D. Check the condition of all spray hoses.

Note: Replace any hoses that are worn or damaged.

E. Tighten all hose fittings.

F. Paint all scratched or bare metal surfaces with paint is available from your Authorized Service Dealer.

G. Store the machine in a clean, dry garage or storage area.

H. Remove the key from the STARTER switch and put the key in a safe place out of the reach of children.

I. Cover the machine to protect it and keep it clean.

Removing the Sprayer and Tank Skid

Lifting equipment capacity: 408 kg (900 lb)

⚠ DANGER

The sprayer tank assembly represents a stored energy hazard. If not properly retained when installing or removing the assembly it can move or fall and injure you or other bystanders.

Use straps and an overhead lift to support the sprayer tank assembly during installation, removal, or any maintenance when the retaining fasteners are being removed.

Preparing the Center Console

1. Disconnect the battery cables from the battery; refer to 9 Installing the Sprayer Fuse Block (page 22).
2. Separate the fuse block of the sprayer from the fuse block of the machine and disconnect the wiring between the 2 fuse blocks; refer to 9 Installing the Sprayer Fuse Block (page 22).
3. Remove the wiring harness from J-clips; refer to 8 Installing the Control Console and Electrical Harness (page 21).
4. Loosen the hand knob that is located below the console and remove the hairpin; refer to Installing the Control Console to the Machine (page 21).
5. Remove the console from the console-mounting bracket and align the pivot pin on the control console with the storage bracket at the front tank strap ; refer to Installing the Control Console to the Machine (page 21) and Installing the Control Console (page 16).
6. Assemble the console to the bracket and secure the pivot pin to the bracket with the hairpin; refer to Installing the Control Console (page 16).

Installing the Jackstands

Lifting equipment capacity: 408 kg (900 lb)

1. Align the front jackstand with the jackstand receiver at the front of the tank (Figure 105).

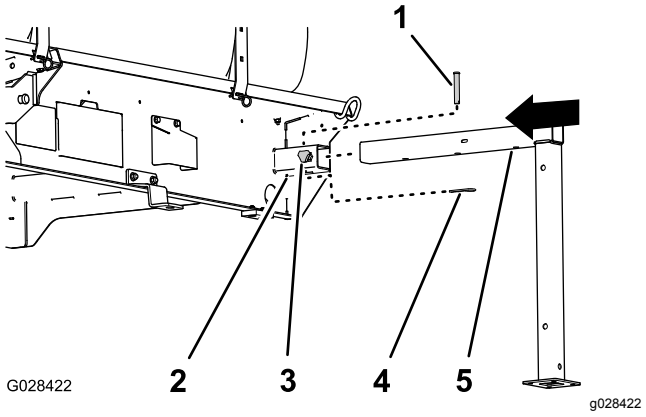


Figure 105

1. Clevis pin (1/2 x 3 inch)
2. Jackstand receiver
3. Lock knob
4. Hairpin (5/32 x 2-5/8 inch)
5. Front jackstand

2. Insert the jackstand into the receiver until the middle hole in the horizontal jackstand tube is aligned with the hole in the top of the receiver (Figure 105).
3. Insert the clevis pin (1/2 x 3 inch) into the holes in the jackstand and receiver and secure the clevis pin with a hairpin (5/32 x 2-5/8 inch).
4. Thread a lock knob into the receiver tighten the knob by hand (Figure 105).
5. Align the rear jackstand with the rear jackstand receiver (Figure 106).

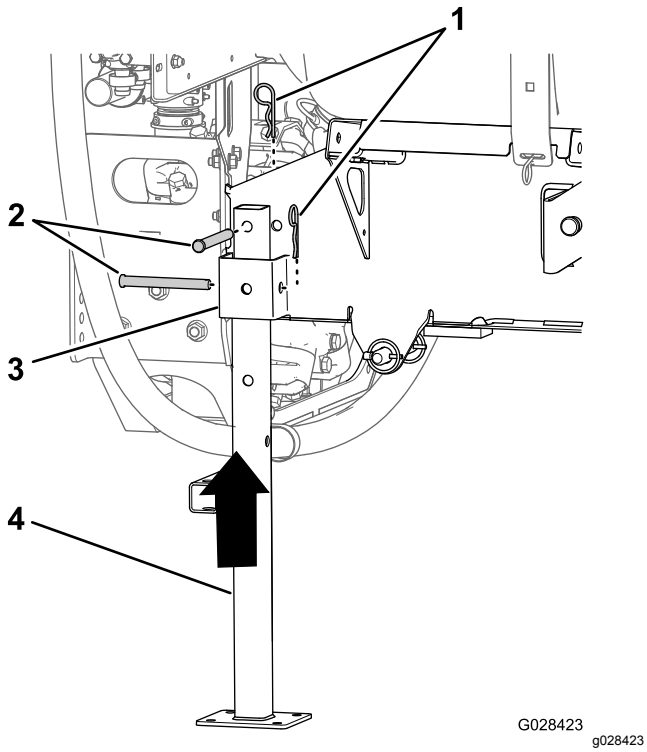


Figure 106

1. Hairpin (5/32 x 2-5/8 inch)
2. Clevis pin (1/2 x 4-1/2 inch)
3. Jackstand receiver
4. Rear jackstand

6. Align the hole in the top of the jackstand with the hole in the frame of the tank skid (Figure 106)
7. Secure the jackstand to the receiver and the frame with 2 clevis pin (1/2 x 4-1/2 inch) and 2 hairpins (5/32 x 2-5/8 inch) as shown in Figure 106.
8. Repeat steps 7 through 7 for the front and rear jackstands at the other side of the tank skid.

Removing the Sprayer Skid

1. Lower booms to approximately 45° and then pivot them forward (Figure 107).

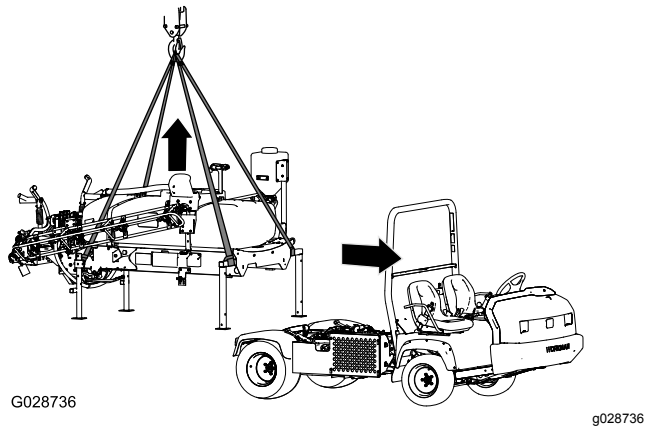


Figure 107

2. Remove the 2 bolts (1/2 x 1-1/2 inches) and a 2 locknut (1/2 inch) that secure the hold down bracket of the tank skid assembly to the bed bracket on the frame at each side of the machine; refer to 11 Lowering the Tank Skid (page 25).
3. Raise the tank skid with the lift cylinders, install the cylinder lock, and perform the following:

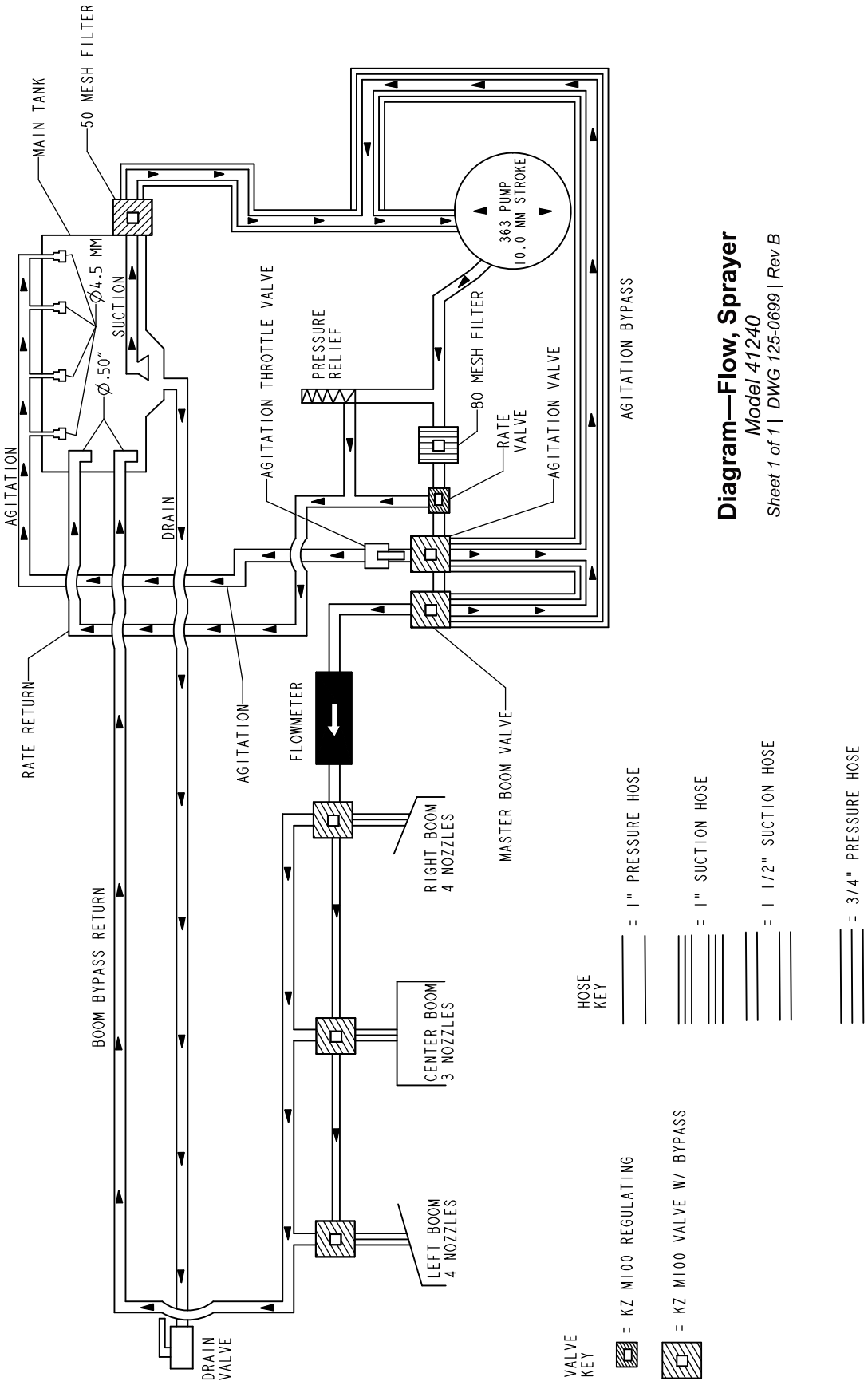
   Note: Refer to Raising the Tank Assembly (page 60).

   - For HD- and HDX-Series Workman models with a manual transmission, disconnect the PTO shaft from the transaxle PTO; refer to the installation instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Manual Workman Utility Vehicle.
   - For HDX Workman with a automatic transmission, disconnect the hoses at the high-flow hydraulic panel and cap the fittings; refer to the installation instructions for the Multi Pro WM Turf Sprayer Finishing Kit, Automatic Workman Utility Vehicle.
   - Disconnect the speed sensor wiring; refer to Connecting the Speed Sensor Harness (HD-Series Models with a Manual Transmission) (page 20) and Connecting the Speed Sensor Harness (HDX-Auto Model) (page 21).
4. Remove the cylinder lock and lower the tank skid with the lift cylinders; refer to Lowering the Tank Assembly (page 61).
5. Attach the lifting equipment to the horizontal tubes of the forward jackstands and the vertical post of the rear jackstands (Figure 107).
6. Lift the tank assembly 7.5 to 10 cm (3 to 4 inches), and remove the lynch pins and clevis pins securing the lift cylinders to the tank assembly.
7. Lift the tank skid from the machine high enough to clear the skid from the machine (Figure 107).
8. Carefully move the vehicle forward and away from the tank skid.
9. Slowly lower the skid tank to the ground.

Troubleshooting

Problem	Possible Cause	Corrective Action
A boom section does not spray.	1. The electrical connection on the boom valve is dirty or disconnected. 2. A fuse has blown. 3. There is a pinched hose 4. A boom by-pass valve is improperly adjusted. 5. One of the boom valves is damaged. 6. The electrical system is damaged.	1. Turn the valve off manually. Disconnect the electrical connector on the valve and clean all leads, then reconnect it. 2. Check the fuses and replace them as necessary. 3. Repair or replace the hose. 4. Adjust the boom by-pass valves. 5. Contact your Authorized Service Dealer. 6. Contact your Authorized Service Dealer.
A boom section does not turn off.	1. The boom-section valve is damaged.	1. Disassemble the boom-section valve; refer to the section Cleaning the Sprayer Valves. Inspect all of the parts and replace any that are damaged.
A boom valve is leaking.	1. A seal is worn or damaged.	1. Disassemble the valve and replace the seals using the Valve Repair Kit; contact your Authorized Service Dealer.
A pressure drop occurs when you turn on a boom.	1. The boom bypass valve is improperly adjusted. 2. There is an obstruction in the boom valve body. 3. A nozzle filter is damaged or clogged.	1. Adjust the boom bypass valve. 2. Remove the inlet and outlet connections to the boom valve and remove any obstructions. 3. Remove and inspect all nozzles.

Schematics



Flow Diagram, Sprayer System DWG 125-0699 (Rev. B)

Notes:

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International Distributor List

Distributor:	Country:	Phone Number:	Distributor:	Country:	Phone Number:
Agrolanc Kft	Hungary	36 27 539 640	Maquiver S.A.	Colombia	57 1 236 4079
Balama Prima Engineering Equip.	Hong Kong	852 2155 2163	Maruyama Mfg. Co. Inc.	Japan	81 3 3252 2285
B-Ray Corporation	Korea	82 32 551 2076	Mountfield a.s.	Czech Republic	420 255 704 220
Casco Sales Company	Puerto Rico	787 788 8383	Mountfield a.s.	Slovakia	420 255 704 220
Ceres S.A.	Costa Rica	506 239 1138	Munditol S.A.	Argentina	54 11 4 821 9999
CSSC Turf Equipment (pvt) Ltd.	Sri Lanka	94 11 2746100	Norma Garden	Russia	7 495 411 61 20
Cyril Johnston & Co.	Northern Ireland	44 2890 813 121	Oslinger Turf Equipment SA	Ecuador	593 4 239 6970
Cyril Johnston & Co.	Republic of Ireland	44 2890 813 121	Oy Hako Ground and Garden Ab	Finland	358 987 00733
Equiver	Mexico	52 55 539 95444	Parkland Products Ltd.	New Zealand	64 3 34 93760
Femco S.A.	Guatemala	502 442 3277	Perfetto	Poland	48 61 8 208 416
ForGarder OU	Estonia	372 384 6060	Pratoverde SRL.	Italy	39 049 9128 128
G.Y.K. Company Ltd.	Japan	81 726 325 861	Prochaska & Cie	Austria	43 1 278 5100
Geomechaniki of Athens	Greece	30 10 935 0054	RT Cohen 2004 Ltd.	Israel	972 986 17979
Golf international Turizm	Turkey	90 216 336 5993	Riversa	Spain	34 9 52 83 7500
Guandong Golden Star	China	86 20 876 51338	Lely Turfcare	Denmark	45 66 109 200
Hako Ground and Garden	Sweden	46 35 10 0000	Solvert S.A.S.	France	33 1 30 81 77 00
Hako Ground and Garden	Norway	47 22 90 7760	Spypros Stavrinides Limited	Cyprus	357 22 434131
Hayter Limited (U.K.)	United Kingdom	44 1279 723 444	Surge Systems India Limited	India	91 1 292299901
Hydroturf Int. Co Dubai	United Arab Emirates	97 14 347 9479	T-Markt Logistics Ltd.	Hungary	36 26 525 500
Hydroturf Egypt LLC	Egypt	202 519 4308	Toro Australia	Australia	61 3 9580 7355
Irrimac	Portugal	351 21 238 8260	Toro Europe NV	Belgium	32 14 562 960
Irrigation Products Int'l Pvt Ltd.	India	0091 44 2449 4387	Valtech	Morocco	212 5 3766 3636
Jean Heybroek b.v.	Netherlands	31 30 639 4611	Victus Emak	Poland	48 61 823 8369

European Privacy Notice

The Information Toro Collects
Toro Warranty Company (Toro) respects your privacy. In order to process your warranty claim and contact you in the event of a product recall, we ask you to share certain personal information with us, either directly or through your local Toro company or dealer.

The Toro warranty system is hosted on servers located within the United States where privacy law may not provide the same protection as applies in your country.

BY SHARING YOUR PERSONAL INFORMATION WITH US, YOU ARE CONSENTING TO THE PROCESSING OF YOUR PERSONAL INFORMATION AS DESCRIBED IN THIS PRIVACY NOTICE.

The Way Toro Uses Information
Toro may use your personal information to process warranty claims, to contact you in the event of a product recall and for any other purpose which we tell you about. Toro may share your information with Toro's affiliates, dealers or other business partners in connection with any of these activities. We will not sell your personal information to any other company. We reserve the right to disclose personal information in order to comply with applicable laws and with requests by the appropriate authorities, to operate our systems properly or for our own protection or that of other users.

Retention of your Personal Information
We will keep your personal information as long as we need it for the purposes for which it was originally collected or for other legitimate purposes (such as regulatory compliance), or as required by applicable law.

Toro's Commitment to Security of Your Personal Information
We take reasonable precautions in order to protect the security of your personal information. We also take steps to maintain the accuracy and current status of personal information.

Access and Correction of your Personal Information
If you would like to review or correct your personal information, please contact us by email at legal@toro.com.

Australian Consumer Law

Australian customers will find details relating to the Australian Consumer Law either inside the box or at your local Toro Dealer.

Toro General Commercial Product Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.
* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196

952–888–8801 or 800–952–2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, or modified non-Toro branded accessories and products. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration.
- Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part. Parts replaced under this warranty are covered for the duration of the original product warranty and become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty:

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note regarding engine warranty:

The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement supplied with your product or contained in the engine manufacturer's documentation for details

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer.

374-0253 Rev C