



2010 The BOSS Way
Iron Mountain, MI 49801
United States

Owner's Manual

Gas Liquid Sprayer

Part No. LIQ28860—Serial No. 40000000 and Up

Part No. LIQ28862—Serial No. 40000000 and Up

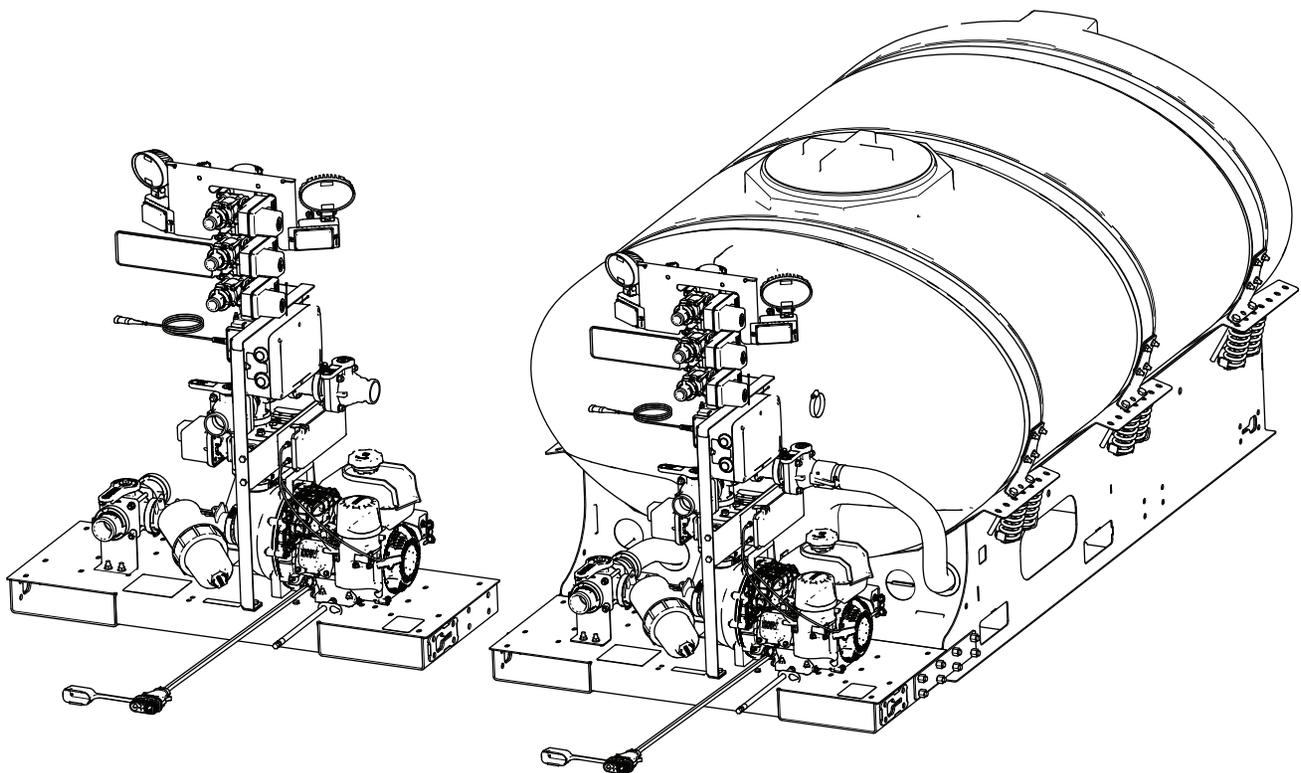
Part No. LIQ28863—Serial No. 40000000 and Up

Part No. LIQ28864—Serial No. 40000000 and Up

Part No. LIQ28865—Serial No. 40000000 and Up

Part No. LIQ28866—Serial No. 40000000 and Up

Part No. LIQ28875—Serial No. 40000000 and Up



BOSS Products limited consumer warranty and BOSS Products commercial warranty policies are located at www.bossplow.com.

Patent www.ttcopats.com

Electromagnetic Compatibility

Domestic: This device complies with FCC Rules Part 15. 19(a)(3) and (a)(4): This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference that may be received, including interference that may cause undesirable operation.

This product has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna, increase the separation between the equipment and receiver, connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and consult the dealer or an experienced radio/TV technician for help. **Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operation instructions for satisfying RF exposure compliance. To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 cm from all persons.

FCC ID: 2A8UK-LEGSPRA -Base, OA3MRF24J40MA-Hand Held

IC: 7693A-24J40MDME-Base, 7693A-24J40MA-Hand Held

International Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Under Innovation, Science and Economic Development Canada's regulations, this radio transmitter may only operate using the external antenna under which it was approved. This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This radio transmitter 29449-LEGSPRA has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device. Acceptable Antennas: L-Com Model: HGV-2404U. 4 dBi Gain, 50 ohm impedance.

⚠ WARNING

CALIFORNIA Proposition 65 Warning

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

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

This machine is a dedicated ice-control spray system and is intended to be used by professional, hired operators. It is designed primarily for spraying ice-control solutions on residential or commercial properties. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

Visit www.bosspow.com for more information, including safety tips, training materials, accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine BOSS parts, or additional information, contact an Authorized BOSS Dealer or BOSS Technical Service (1-800-286-4155) and have the model and serial numbers of your product ready. **Figure 1** identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.

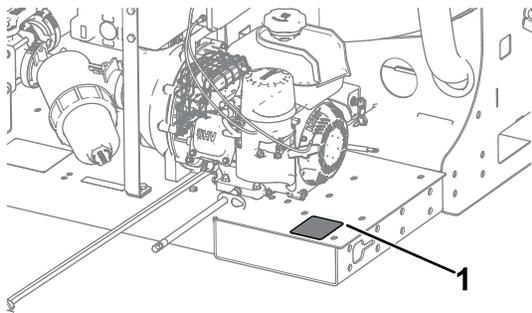


Figure 1

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1. Model and serial number location

Model No. _____
Serial No. _____

Safety-Alert Symbol

The safety-alert symbol (**Figure 2**) shown in this manual and on the machine identifies important safety messages that you must follow to prevent accidents.



Figure 2

Safety-alert symbol

g000502

The safety-alert symbol appears above information that alerts you to unsafe actions or situations and is followed by the word **DANGER**, **WARNING**, or **CAUTION**.

DANGER indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury.

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

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Safety

General Safety

This product is capable of causing personal injury. Always follow all safety instructions to avoid serious personal injury.

- Read and understand the contents of this *Operator's Manual* before starting the engine.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Use appropriate personal protective equipment (PPE) to guard against contact with chemicals. Chemical substances used in the sprayer system may be hazardous and toxic.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep clear of any discharge area of the sprayer nozzles and spray drift. Keep bystanders and children out of the operating area.
- Never allow children to operate the machine.
- Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.

Improperly using or maintaining this machine 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 these instructions may result in personal injury or death.

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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 missing.



143-7420

decal143-7420

1. Warning—read the *Operator's Manual*.
2. Warning—all operators should be trained before operating the machine.
3. Warning—wear hearing protection.
4. Warning—wear eye protection.
5. Warning—do not enter the tank.
6. Warning—remove the key and read the *Operator's Manual* before performing maintenance.
7. Fire hazard—do not put flammable liquids in the tank.
8. Warning—turn off the sprayer, shut off the machine, and remove the key before leaving the machine or performing maintenance.
9. Warning—stay away from moving parts; keep all guards and shields in place.
10. Tipping hazard—lift only an empty tank; do not lift the tank when full.
11. Thrown object hazard—keep bystanders away.



143-7430

decal143-7430

1. Power—computer
2. Hose reel—rewind



133-8062

decal133-8062

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Sprayer assembly	1	
	Skid tank	1	
	Attach plate	2	
	Attach bracket	2	
	Bolt (1/2 x 1-1/2 inches)	16	
	Nut (1/2 inch)	16	
2	No parts required	–	Mount the tank.
3	Left shroud	1	Assemble the boom.
	Right shroud	1	
	Center support bracket	1	
	Hex bolt (3/8 x 1 inch)	21	
	Locknut (3/8 inch)	20	
	Hex bolt (3/8 x 1-1/4 inches)	9	
	Center nozzle bracket	1	
	Handle	2	
	Left boom pipe	1	
	Right boom pipe	1	
	Coupler	1	
	Right shroud end	1	
	Left shroud end	1	
	Pipe cap	2	
	Straight pipe fitting (1 inch)	1	
	Top nozzle (large)	2	
	Middle nozzle (medium)	2	
	Bottom nozzle (small)	2	
	Center nozzle	1	
	Boom height bracket	1	
Tow hitch	1		
Bolt (1/2 x 1-1/4 inches)	5		
Locknut (1/2 inch)	5		
4	Roll of 1-inch hose	1	Install the boom camlocks.
	Threaded camlock	4	
	Hose barb fitting	4	
	Hose barb camlock	2	
	Hose clamp	6	
5	Vehicle-side harness	1	Install the wire harness.
	Fuse holder	1	
	Battery cable	1	
6	Bluetooth antenna	1	
	Antenna harness	1	
	Antenna plate mount	1	

Procedure	Description	Qty.	Use
7	No parts required	–	Connect to Bluetooth.
8	No parts required	–	Connect to WiFi.

1

Installing the Sprayer Assembly to the Skid Tank

Parts needed for this procedure:

1	Sprayer assembly
1	Skid tank
2	Attach plate
2	Attach bracket
16	Bolt (1/2 x 1-1/2 inches)
16	Nut (1/2 inch)

Procedure

1. On each side of the skid tank, install the attach plate and attach bracket using 4 bolts (1/2 x 1-1/2 inches) and 4 nuts (1/2 inch) as shown in the following figure.

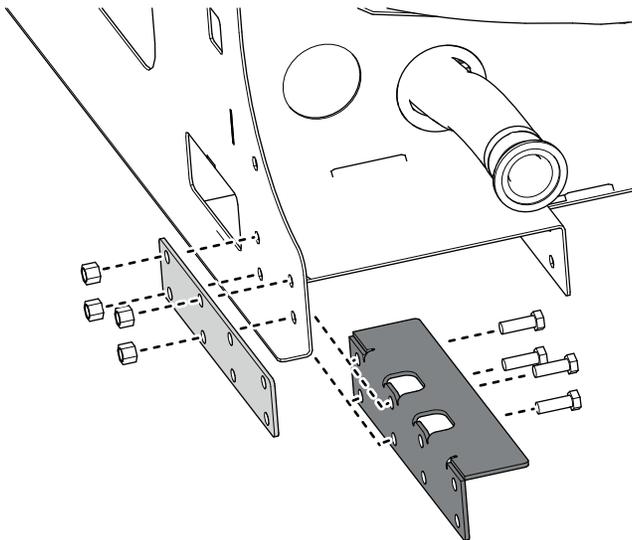


Figure 3

Left side of the tank shown

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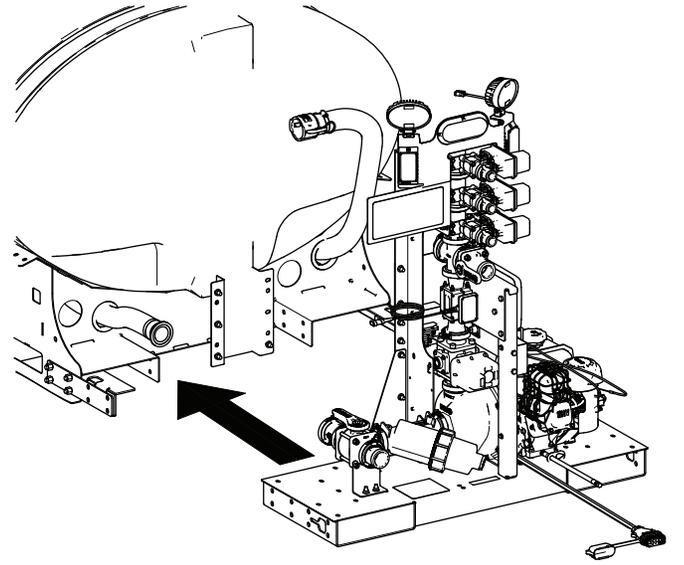


Figure 4

g573010

3. On each side of the skid tank, install the sprayer assembly to the tank using 4 bolts (1/2 x 1-1/2 inches) and 4 nuts (1/2 inch) as shown in the following figure.

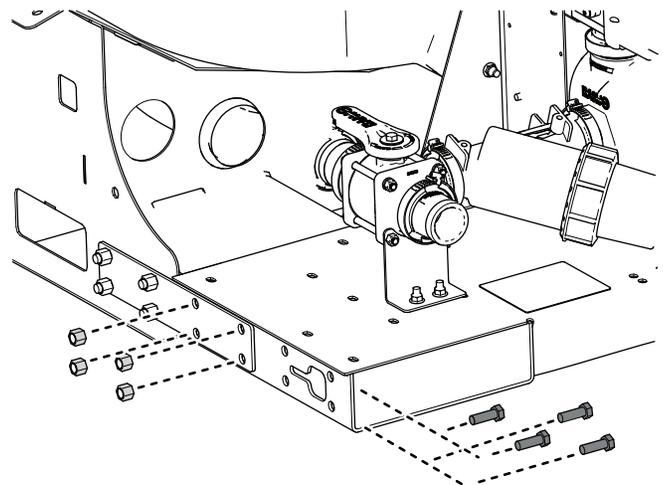


Figure 5

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2. Position the sprayer assembly between the brackets on the tank.

4. Connect the hose to the suction valve.

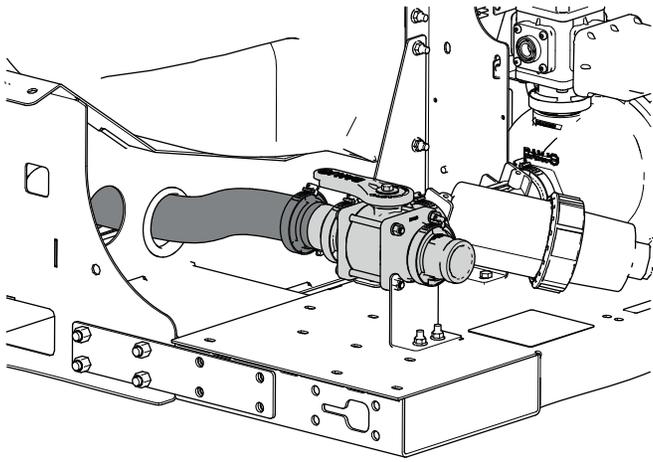


Figure 6

g573031

2

Mounting the Machine

No Parts Required

Procedure

1. Open the tailgate of the vehicle.
2. Using the forklift pockets as shown in the following figure, lift the machine onto the vehicle bed.

Note: If your vehicle has a stainless or powder-coated bed, add rubber mats under the length of the skid to prevent the machine from sliding on smooth surfaces.

5. Connect the hose to the bypass valve.

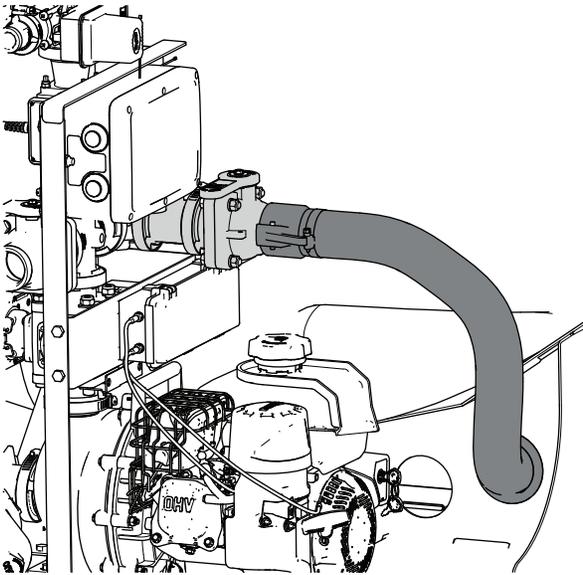


Figure 7

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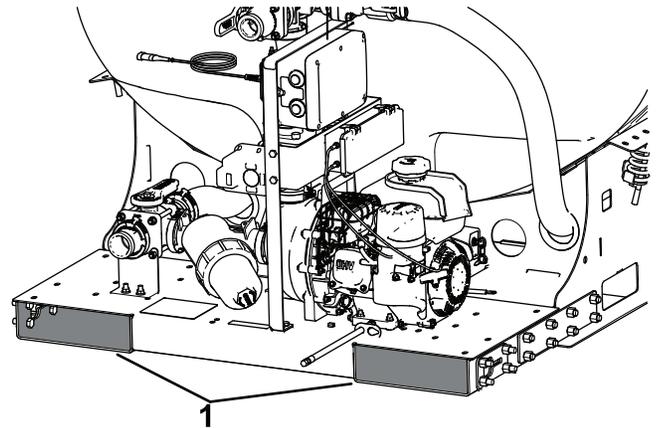


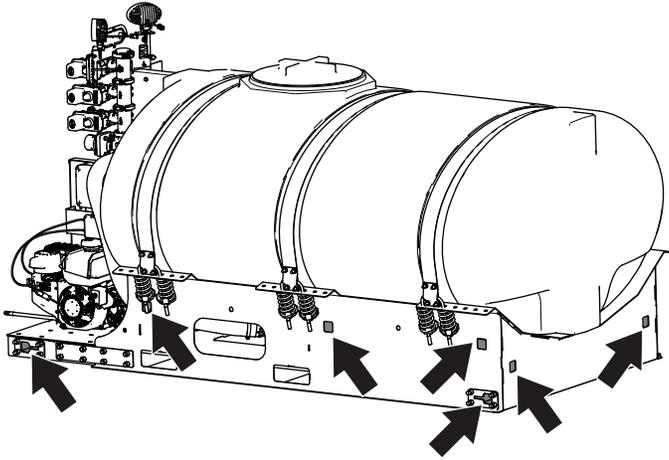
Figure 8

g573455

1. Forklift pockets

- Secure the machine to the vehicle using straps or chains connected to the tie-down points.

Note: Models LIQ28863, LIQ28864, and LIQ28865 only: there are 12 tie-down points.

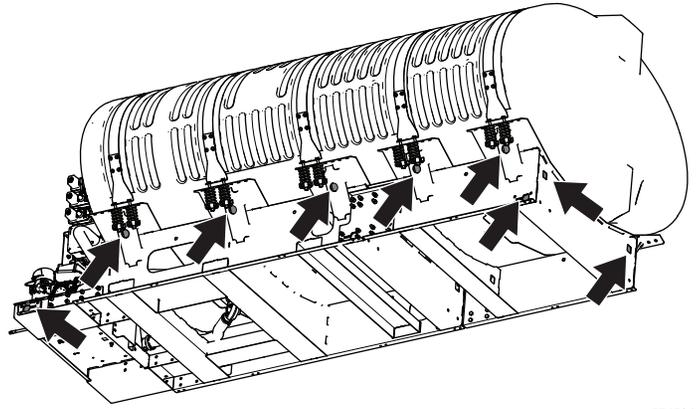


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Figure 9

Models LIQ28863, LIQ28864, and LIQ28865 only

Note: Models LIQ28866 only: there are 15 tie-down points.

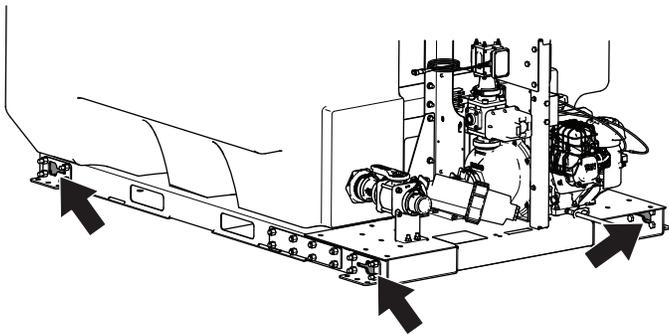


g574584

Figure 11

Model LIQ28866 only

Note: Models LIQ28862 only: there are 4 tie-down points.



g573504

Figure 10

Model LIQ28862 only

3

Assembling the Boom

Parts needed for this procedure:

1	Left shroud
1	Right shroud
1	Center support bracket
21	Hex bolt (3/8 x 1 inch)
20	Locknut (3/8 inch)
9	Hex bolt (3/8 x 1-1/4 inches)
1	Center nozzle bracket
2	Handle
1	Left boom pipe
1	Right boom pipe
1	Coupler
1	Right shroud end
1	Left shroud end
2	Pipe cap
1	Straight pipe fitting (1 inch)
2	Top nozzle (large)
2	Middle nozzle (medium)
2	Bottom nozzle (small)
1	Center nozzle
1	Boom height bracket
1	Tow hitch
5	Bolt (1/2 x 1-1/4 inches)
5	Locknut (1/2 inch)

Assembling the Boom Shroud

- Slide the left shroud and right shroud into the center support bracket.

Note: The left shroud has a large hole on the top. Align the large hole on the shroud with the large hole on the support bracket.

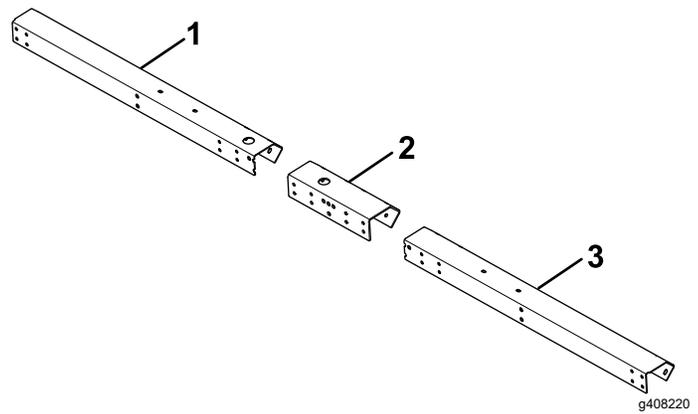


Figure 12

- Left shroud
- Center support bracket
- Right shroud

- Secure the left and right shrouds to the center support bracket with 14 hex bolts (3/8 x 1 inch) and 14 locknuts (3/8 inch); refer to Figure 13.
- Connect the center nozzle holder onto the shroud assembly with 2 hex bolts (3/8 x 1-1/4 inches) and 2 locknuts (3/8 inch); refer to Figure 13.

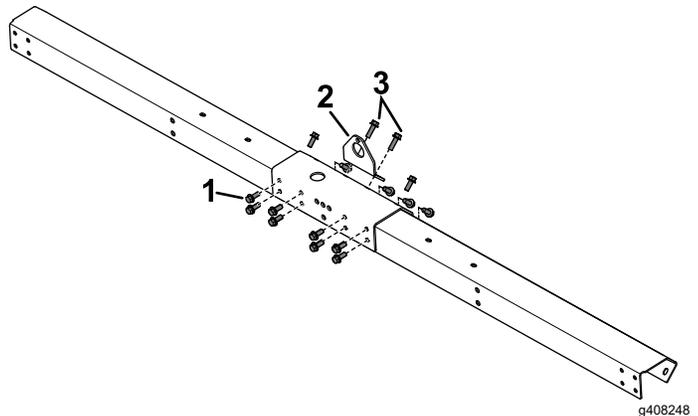


Figure 13

- Hex bolts (3/8 x 1 inch)
- Center nozzle holder
- Hex bolts (3/8 x 1-1/4 inches)

- Install the handles onto the shroud assembly with 2 hex bolts (3/8 x 1 inch) and 2 locknuts (3/8 inch) on each (Figure 14).

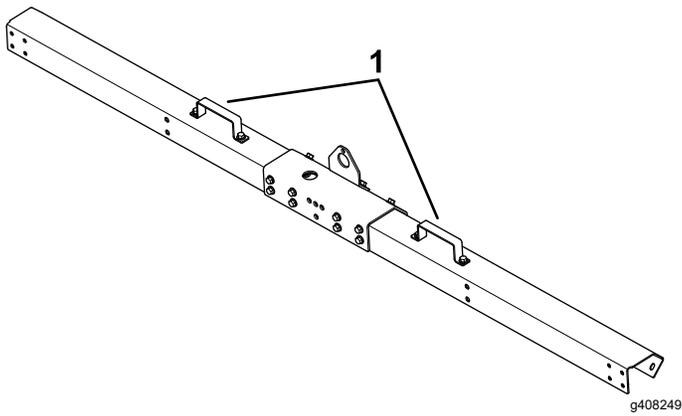


Figure 14

1. Handles

5. Attach the boom height bracket onto the shroud with 3 bolts (1/2 x 1-1/4 inches) and 3 locknuts (1/2 inch) as shown in [Figure 15](#).

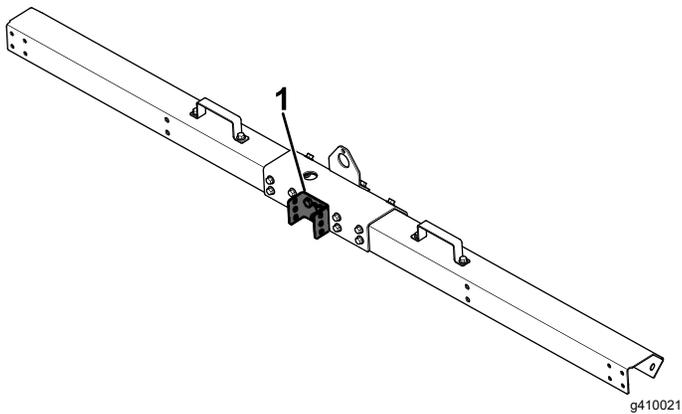


Figure 15

1. Boom height bracket

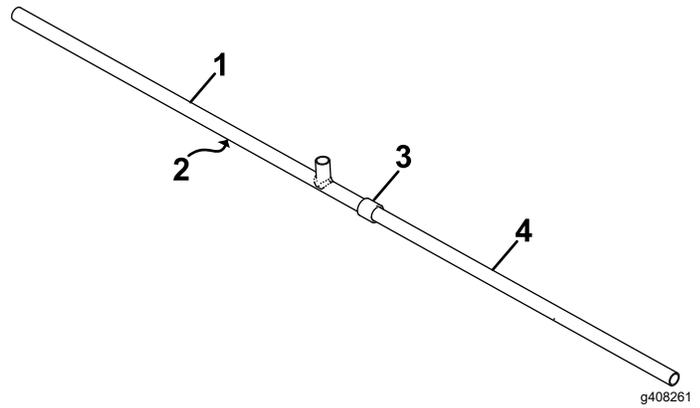


Figure 16

1. Left boom pipe
2. Pipe holes (perpendicular to the ground)
3. Coupler
4. Right boom pipe

2. Loosely install the right shroud end onto the boom shroud with 5 hex bolts (3/8 x 1 inch) and 5 locknuts (3/8 inch); refer to [Figure 17](#).

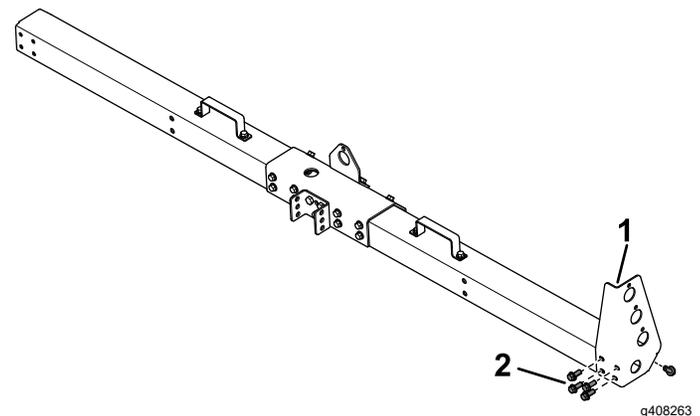


Figure 17

1. Right shroud end
2. Hex bolts (3/8 x 1 inch)

Assembling the Boom Pipe

1. Use thread sealer compound to connect the 2 boom pipes to the coupler ([Figure 16](#)).

Important: Ensure that the holes in the pipes are perpendicular to the ground.

Note: Use a bench vice to obtain proper tightness.

3. Flip the shroud upside down and slide the right side of the boom pipe through the right shroud end.
4. Loosely install the left shroud end onto the boom shroud with 5 hex bolts (3/8 x 1 inch) and 5 locknuts (3/8 inch) as shown in [Figure 18](#).
5. Use thread tape to securely install the pipe caps onto the ends of the boom pipe.

Important: Use caution when tightening the pipe caps. The caps may crack if you overtighten them.

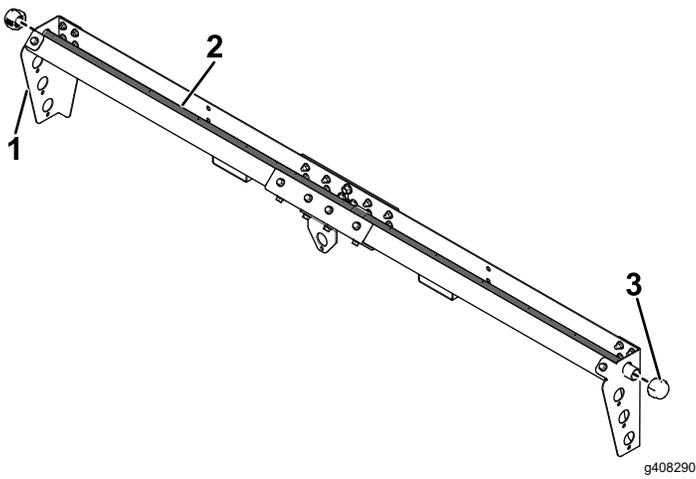


Figure 18

- 1. Left shroud end
- 2. Boom pipe
- 3. Pipe cap

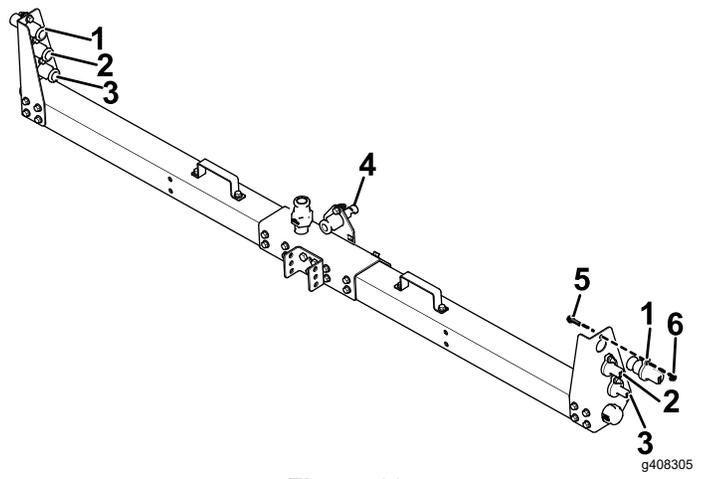


Figure 20

- 1. Top nozzle (large)
- 2. Middle nozzle (medium)
- 3. Bottom nozzle (small)
- 4. Center nozzle
- 5. Bolt (3/8 x 1-1/4 inches)
- 6. Locknut (3/8 inch)

- 6. Securely tighten all fasteners on the left and right shroud ends.
- 7. Use thread tape to securely install the 1-inch straight pipe fitting onto the boom pipe (Figure 19).

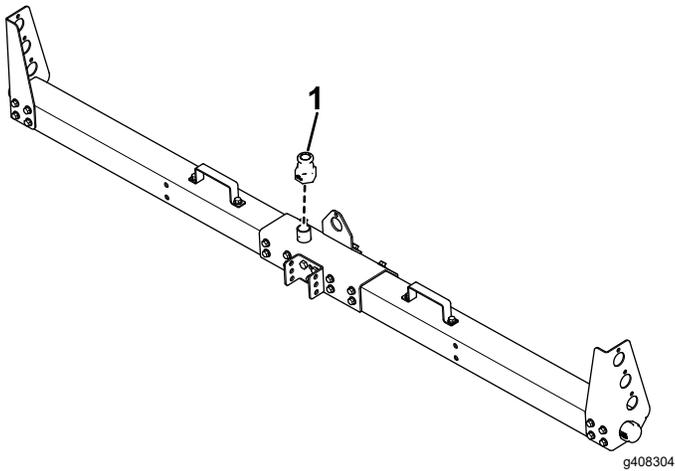


Figure 19

- 1. Straight pipe fitting (1 inch)

- 8. Install the 7 nozzles on the shroud using 7 bolts (3/8 x 1-1/4 inches) and 7 locknuts (3/8 inch). Refer to Figure 20 for the proper orientation.

Connecting the Tow Hitch

Note: The tow hitch can be mounted in one of eight positions. If your vehicle sits higher, install the tow hitch lower. If your vehicle sits lower, install the tow hitch higher.

- 1. Connect the tow hitch to the boom height bracket with 2 bolts (1/2 x 1-1/4 inches) and 2 locknuts (1/2 inch) as shown in Figure 21.

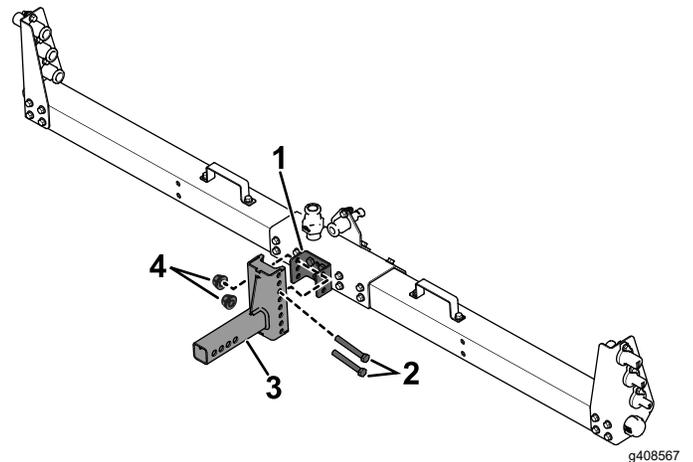


Figure 21

- 1. Boom height bracket
- 2. Bolts (1/2 x 1-1/4 inches)
- 3. Tow hitch
- 4. Locknuts (1/2 inch)

- 2. When the machine is installed on the vehicle, ensure that the distance between the bottom of the boom shroud to the ground is 51 to 71 cm (20 to 28 inches). Adjust if necessary. Refer to Figure 22.

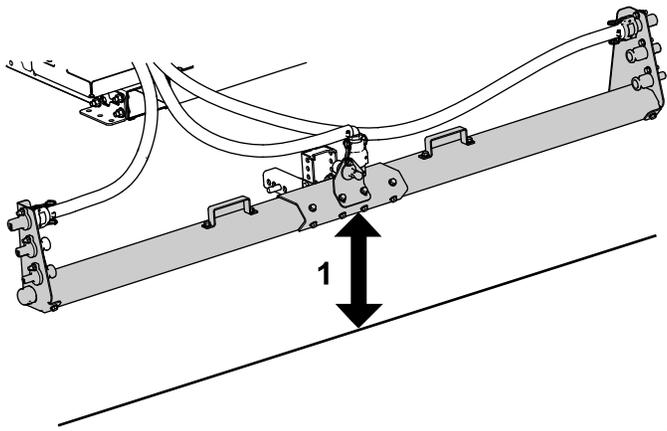


Figure 22

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1. 51 to 71 cm (20 to 28 inches)

4

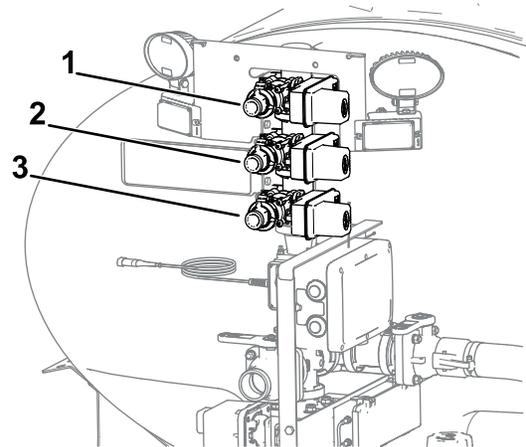
Installing the Boom Camlocks

Parts needed for this procedure:

1	Roll of 1-inch hose
4	Threaded camlock
4	Hose barb fitting
2	Hose barb camlock
6	Hose clamp

Procedure

1. Install the 4 hose barb fittings into the 4 threaded camlocks.
2. Install 3 threaded camlocks to the bank of 3 valves ([Figure 23](#)).



g573517

Figure 23

1. Top valve, passenger's side of boom
2. Center valve, middle of boom
3. Bottom valve, driver's side of boom

3. Install the last camlock to center of the boom.
4. Install the 2 hose barb camlocks to the driver and passenger side of the boom.
5. Before cutting the hose, hold the hose from the valve to the boom connection to ensure that the hose lengths are appropriate.
6. Connect the hoses to the valves and the boom connections with the hose clamps.

5

Installing the Wire Harness

Parts needed for this procedure:

1	Vehicle-side harness
1	Fuse holder
1	Battery cable

Procedure

Note: Apply dielectric grease to all electrical connections.

Note: The battery is not included with these models.

1. Secure the vehicle-side main connector near the center of the rear bumper using cables ties or the bracket provided with the kit.
2. Route the wire harness along the driver-side frame rail and into the engine compartment, and secure it with cable ties.

Note: Keep the wire harness away from any hot or moving parts.

3. Connect the in-cab harness to the main vehicle-side wiring harness near the firewall. Secure the harness with cable ties. If this is the second device being connected, remove the 4-pin cap from the in-cab harness and plug the main vehicle-side harness in its place.
4. Install the fuse block within 30 cm (12 inches) of the battery and remove the fuse-block cover.
5. Connect the red power/ground cable to the fuse block.

Note: Ensure that the 150 A fuse is installed.

6. Connect the power cable to the other end of the fuse block.
7. Install the cover onto the fuse block.
8. Connect the power cable to the positive (+) battery post.

Important: Do not connect the ground cable at this time.

9. Wrap all of the excess wire and secure it.
10. Connect the black power/ground cable and the controller ground cable to the negative (-) battery post.

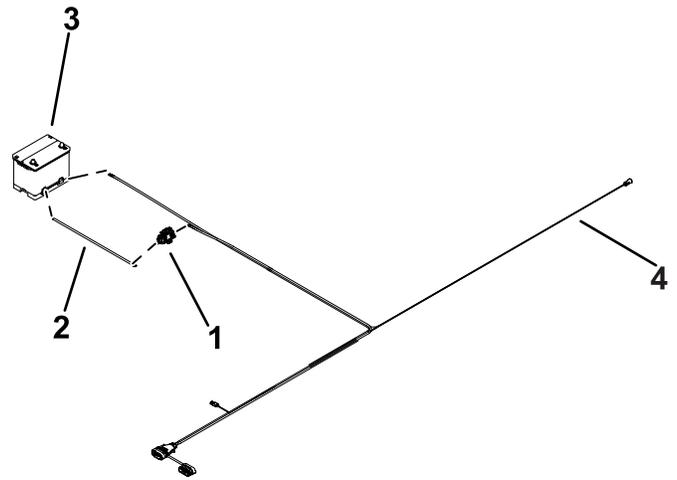


Figure 24

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1. Fuse holder
2. Battery cable
3. Battery (not included)
4. Vehicle-side harness

6

Installing the Bluetooth Antenna

Parts needed for this procedure:

1	Bluetooth antenna
1	Antenna harness
1	Antenna plate mount

Procedure

1. Install the Bluetooth antenna to the cabin of the vehicle using the magnet on the back.

Note: If the cabin of the vehicle is aluminum, install the antenna plate mount to the vehicle before installing antenna.

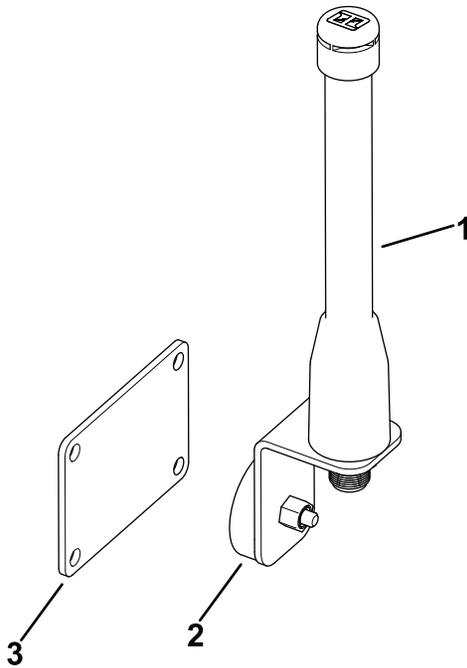


Figure 25

g573607

1. Antenna
2. Magnet
3. Antenna plate (optional)

2. Connect the antenna harness to the control module.

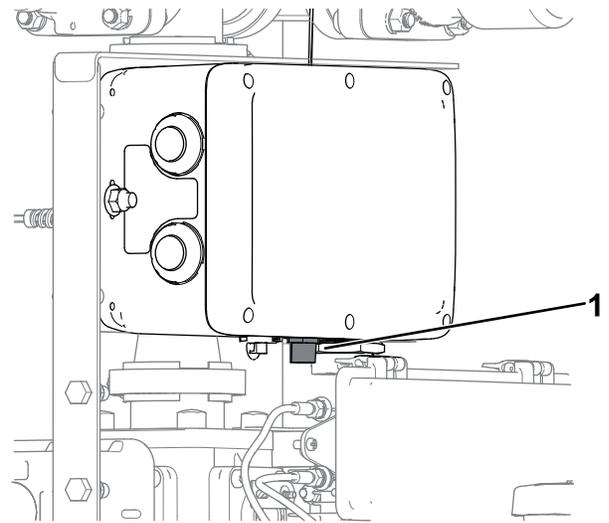


Figure 26

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1. Control module harness connector

3. Route the harness to the antenna and connect it to the antenna.

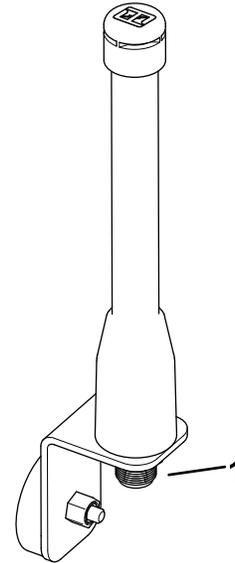


Figure 27

g573608

1. Harness connector

7

Connecting to Bluetooth

No Parts Required

Procedure

1. Using the machine, download the *VSI Spray Control* App from either the Google Play store or the Apple App store. Search for “VSI Spray Control” and download the app.
2. Once downloaded, open the app, read the liability prompt, press OK, and press on the DETAILS tab at the bottom.
3. Ensure that the sprayer engine key is in the ON position.

All the sprayers within range will appear.

Note: The switch can remain in this position all the time without draining the battery.

4. Turn on the power switch on the control box. Once a blue light appears on the switch, press CONNECT in the app on your phone or tablet.
5. Select the sprayer that you want to connect to (the serial numbers are listed).

The app is now connected to the sprayer and has control over the machine.

Note: The serial number can be found on the side of the control box.

No other devices can connect to a machine that is actively paired to a device.

6. If desired, rename the machine through the DETAILS page in the app.

8

Connecting to WiFi

No Parts Required

Procedure

The system uses WiFi to search for new firmware releases that may come out to increase performance and reliability of the system. The sprayer searches for active WiFi networks once per day for 5 minutes. If an update is available and the machine is in range, the system will automatically update.

Connect to WiFi after you first purchase the machine. You can also do a prompted connection at any point in time by following these same connection steps:

1. Press on the PROFILE tab at the bottom of the app and connect the sprayer to the nearest WiFi to where it will be stationed or most often parked.
2. To save WiFi credentials, connect your phone or tablet to the sprayer and select SCAN FOR WiFi NETWORKS. A list of available networks displays.
3. Select the network that you wish to connect to and enter the credentials for that network. You will be prompted with either a successful connection or a failed connection.

Product Overview

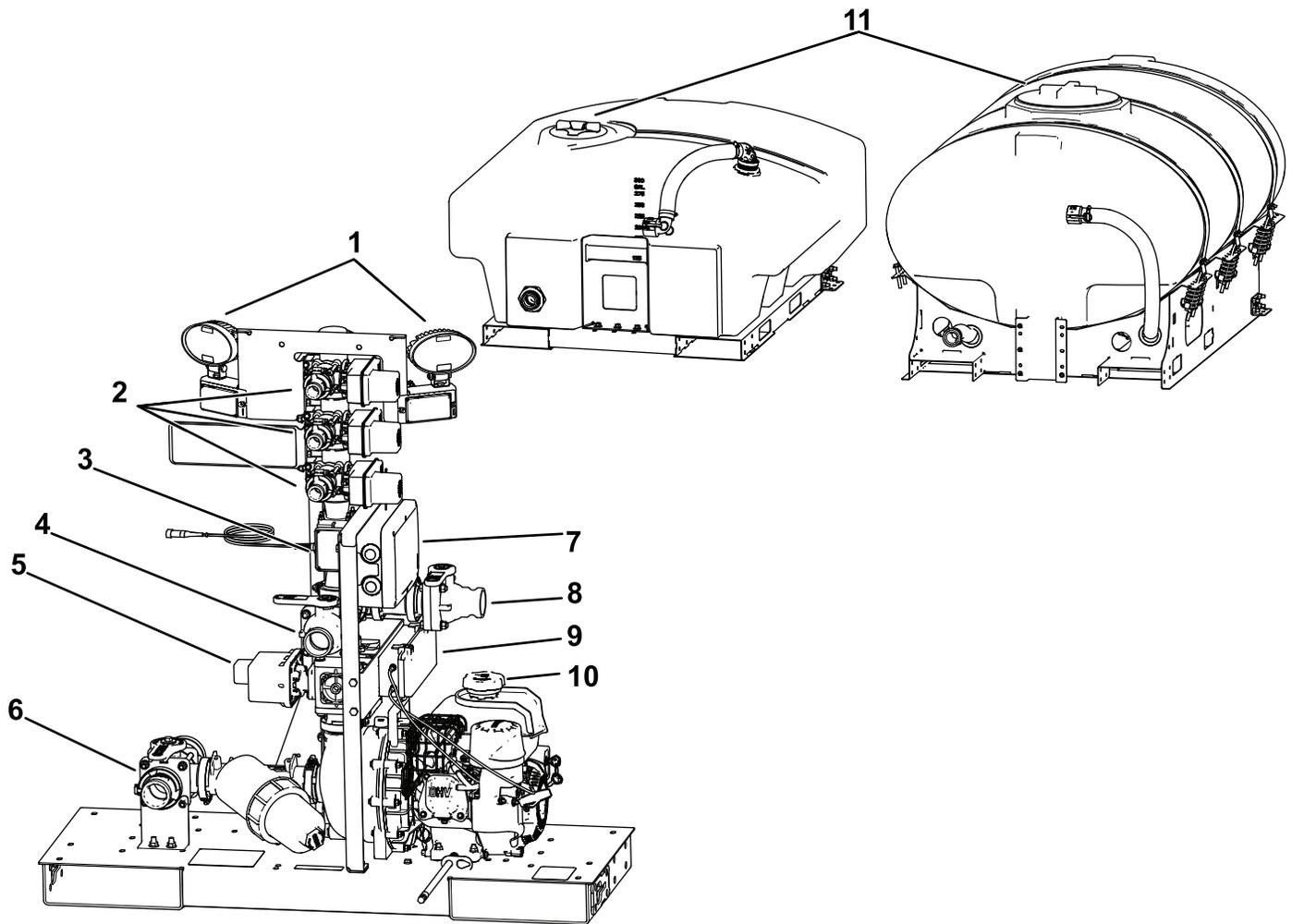


Figure 28

g573712

- | | | |
|-------------------|-----------------------|----------------------|
| 1. Work light | 5. Proportional valve | 9. Total control box |
| 2. Boom valves | 6. Suction valve | 10. Fuel cap |
| 3. Flow meter | 7. Control module | 11. Tank cover |
| 4. Pump-out valve | 8. Bypass valve | |

Controls

Total Control Box

The total control box contains actuators that control the throttle and choke. Keep the choke and throttle mechanisms lubricated and clean so that the total control system can function properly. Take care not to damage the linkage cables from the box to the engine.

Flow Meter

The flow meter is the green device in-line with the plumbing on the pressure side of the pump. This vital instrument tracks the flow rate and volume going to the hose reel and spray boom sections. This real-time reading tells your GPS rate-control system to increase or decrease the flow rate to the boom based on your speed by opening or closing the proportional valve. [Figure 29](#) shows the flow meter as viewed from the back of the machine. These magnetic flow meters never require re-calibration due to the use of different brine blends like a conventional turbine flow meter would.

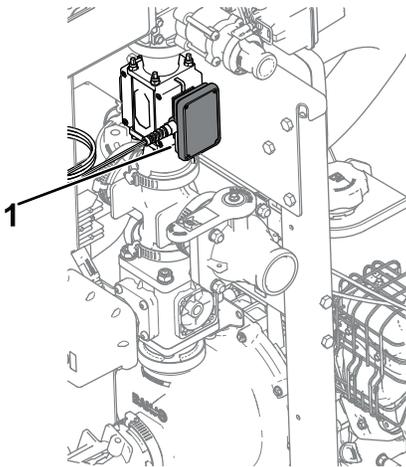


Figure 29

g573723

1. Flow meter

Proportional Valve

The proportional valve regulates the flow to the spray boom based on GPS speed inputs when spraying in AUTO mode or user inputs for desired gallons per minute by the user when using MANUAL mode.

[Figure 30](#) shows the proportional valve as viewed from the back of the sprayer and clearly indicates full flow (all the way counterclockwise, 9 o'clock) or closed (all the way clockwise, 12 o'clock).

Important: If your machine is equipped with a yellow proportional valve, adjust the PID Speed

(auto servo speed) of the machine in the settings to 6.0.

If your machine is equipped with a red proportional valve, adjust the sprayer PID Speed in the settings to 1.5.

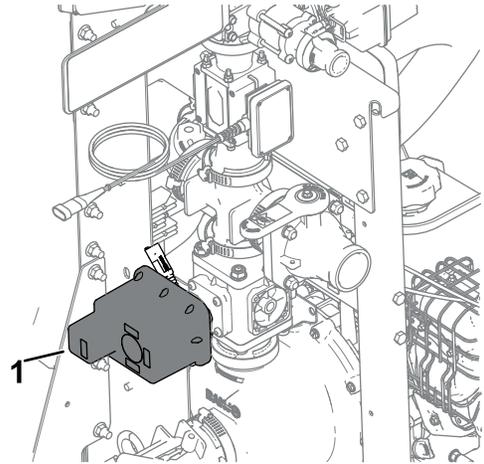


Figure 30

g573724

1. Proportional valve

Filter

Each sprayer is equipped with a filter right before the inlet to the pump. Inside is a reusable stainless steel 30 mesh filter.

If you suspect that the filter is clogged:

1. Rotate the suction valve to the fill position and loosen the collar around the filter housing.
2. Remove the outer housing and the filter.
3. Rinse the filter clean and install it in the housing.

Pile Driver Boom

The Three Lane Boom offers the ability to spray over 9.1 meters (30 feet) wide with precision.

Each section of the boom is controlled via the *VS/ Spray Control* app by pressing the boom section control buttons on the SPRAY tab in accordance with the boom section you want to activate or deactivate. If damage occurs to any part of the boom, contact your authorized BOSS dealer for replacement parts.

Specifications

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

Description	Model LIQ28860	Model LIQ28862	Model LIQ28863	Model LIQ28864	Model LIQ28865	Model LIQ28866
Overall Length	47 cm (18 inches)	152 cm (60 inches)	210 cm (83 inches)	225 cm (89 inches)	229 cm (90 inches)	351 cm (138 inches)
Overall Width	119 cm (47 inches)	152 cm (60 inches)	150 cm (59 inches)	179 cm (71 inches)	198 cm (78 inches)	198 cm (78 inches)
Overall Height	129 cm (51 inches)	87 cm (34 inches)	125 cm (49 inches)	141 cm (56 inches)	159 cm (63 inches)	157 cm (62 inches)
Weight	137 kg (301 lb)	153 kg (338 lb)	223 kg (491 lb)	272 kg (600 lb)	323 kg (713 lb)	512 kg (1128 lb)
Capacity	N/A	1,155 L (305 US gallons)	1,893 L (500 US gallons)	2,839 L (750 US gallons)	3,786 L (1000 US gallons)	6,057 L (1600 US gallons)

Attachments/Accessories

A selection of BOSS approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your authorized BOSS distributor.

To ensure optimum performance and continued safety certification of the machine, use only genuine BOSS replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

Operation

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

Before Operation

Before Operation Safety

General Safety

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Know how to shut off the engine on the machine quickly.
- Check that safety switches and shields are attached and functioning properly. Do not operate the machine unless they are functioning properly.
- Before operating the machine, inspect it to ensure that the components and fasteners are in good working condition. Replace worn or damaged components and fasteners.
- Ensure that all fluid line connectors are tight and that all hoses are in good condition before applying pressure to the system.
- Ensure that the weight of the machine with a full sprayer tank does not exceed the gross vehicle weight rating (GVWR).
- Do not mount or remove the sprayer tank with liquid in it.

Fuel Safety

- Use extreme care in handling fuel. It is flammable and its vapors are explosive.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container.
- Do not remove the fuel cap or fill the fuel tank while the engine is running or hot.
- Do not add or drain the fuel in an enclosed space.

- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.
- If you spill fuel, do not attempt to start the engine; avoid creating any source of ignition until the fuel vapors have dissipated.

Chemical Safety

Chemical substances used in the sprayer system may be hazardous and toxic to you, bystanders, and animals, and they may damage plants, soil, and other property.

- Read the information on each chemical. Refuse to operate or work on the sprayer if this information is not available.
- Before working on a sprayer system, ensure that it has been neutralized and triple rinsed according to the recommendations of the chemical manufacturer(s) and that all 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.
- Carefully read and follow the chemical warning labels and safety data sheets (SDSs) for all chemicals used, and protect yourself according to the chemical manufacturer's recommendations.
- Always protect your body while using chemicals. Use the appropriate personal protective equipment (PPE) to guard against contact with chemicals, such eye protection and/or face shield and chemical-resistant gloves.
- Obtain proper training before using or handling chemicals.
- Use the correct chemical for the job.
- Follow the chemical manufacturer's instructions for the safely applying the chemical. Do not exceed the recommended system application pressure.
- Do not fill, calibrate, or clean the machine while people, especially children, or pets are in the area.
- Do not clean spray nozzles by blowing through them or placing them in your mouth.
- Always wash your hands and other exposed areas as soon as possible after working with chemicals.
- Keep chemicals in their original packages and stored in a safe location.
- Chemicals and fumes are dangerous; never enter the tank or place your head over or in the opening of a tank.
- Properly dispose of unused chemicals and chemical containers as instructed by the chemical manufacturer and your local codes.
- Follow all local, state, and federal regulations for spreading or spraying chemicals.

Fuel Specification

- Use unleaded (87 pump octane minimum) gasoline.
- For best results, use only clean, fresh (less than 30 days old), unleaded gasoline with an octane rating of 87 or higher ((R+M)/2 rating method).
- Ethanol: Gasoline with up to 10% ethanol (gasohol) or 15% MTBE (methyl tertiary butyl ether) by volume is acceptable. Ethanol and MTBE are not the same. Gasoline with 15% ethanol (E15) by volume is not approved for use. Never use gasoline that contains more than 10% ethanol by volume, such as E15 (contains 15% ethanol), E20 (contains 20% ethanol), or E85 (contains 85% ethanol). Using unapproved gasoline may cause performance problems and/or engine damage, which may not be covered under warranty.
- Do not use methanol or gasoline containing methanol.
- Do not store fuel either in the fuel tank or fuel containers over the off-season unless you use a fuel stabilizer.
- Do not add oil to gasoline.

Filling the Fuel Tank

Fuel-Tank Capacity: 3.6 L (0.95 US gallon)

1. Clean around the fuel-tank cap and remove the cap from the tank (Figure 31).

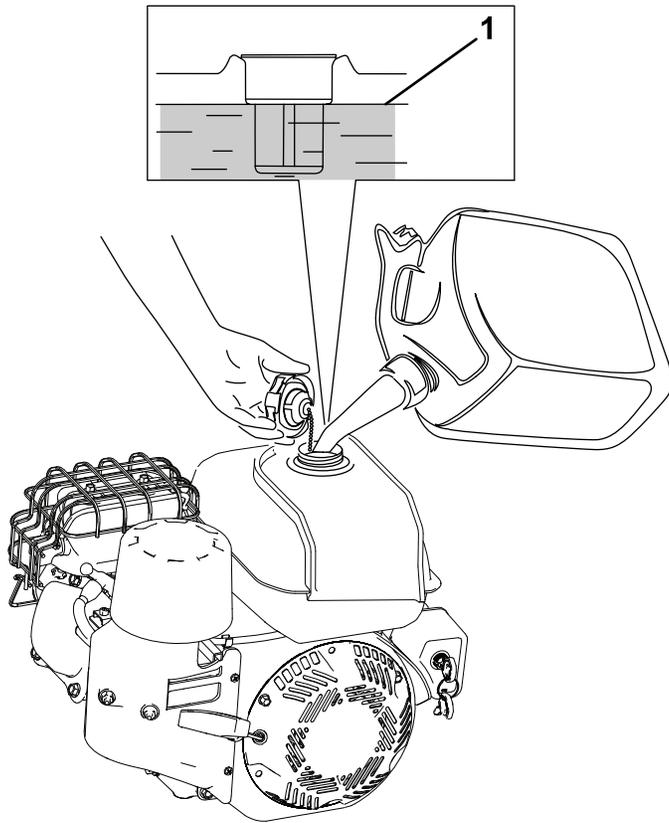


Figure 31

g460175

1. Maximum fuel level
-
2. Fill the fuel tank to approximately 25 mm (1 inch) below the top of the tank with the specified fuel.
The air space below the top of the tank allows the fuel to expand.
Important: Do not overfill the fuel tank. Adding more than the specified level results in damage to the vapor recovery system, leading to engine performance failure. This is not a warrantable failure and requires fuel-tank cap replacement.
 3. Install the fuel-tank cap and wipe up any spilled fuel.

Understanding the Boom Nozzle Positions

Small Nozzles

The small nozzles are located at the center fan and on the bottom of each boom end.

The small nozzles are lower flow rate and made for the lower application rates of typical pre-treatment.

These nozzles are designed for spraying 20 to 50 gallons per acre (GPA) at normal speeds, 3 to 16 km/h or 2 to 10 mph. You can use these tips for post treating in very small lots, on driveways, or other low-speed or low-volume applications.

Medium Nozzles

The medium nozzles are located in the middle of each boom end.

The medium nozzles are designed for normal post treatment applications (60 to 80 GPA and travel speeds of 8 to 23 km/h or 5 to 14 mph).

Large Nozzles

The large nozzles are located on the top of each boom end.

These nozzles are designed for spraying 80 to over 120 GPA or when pre-treating at higher speeds than a typical parking lot, such as roadways or large logistics centers where speeds commonly exceed 40 km/h (25 mph).

Pre-Treatment Fan Nozzle

There are two available connection points on the center boom: the center fan nozzle and the center boom pipe.

The center fan nozzle is designed to be a pre-treatment tip only. The design of the tip allows it to cover slightly more than the width of the truck and provide an even coverage of the application surface.

Note: It is very common for people to want to pre-treat with the jet nozzle holes because they see local roadway and highway departments leaving lines of brine on the road. They do this because of the high rate of speed at which they travel on roadways, requiring a heavier jet pattern to not get diluted in the wind, plus they have very high traffic levels from cars to track the product evenly. Parking lots are different. Lower speeds and less traffic means that a fan tip is preferable, which is why the center pre-treat nozzle is a fan. If you run the small outside pretreat nozzles with the center jets, the application rate **will not** be balanced, and the outer nozzle performance will suffer due to the center jets taking a majority of the liquid pressure/volume from the outside nozzles.

Center Boom Pipe Connection

The center boom pipe connection uses the one-inch stainless steel pipe inside of the boom

shroud. This connection point is used for all post treatment applications and high speed pretreatment applications. As stated before, the center boom will not be balanced when using the small side nozzles, but you can use this configuration in areas requiring very slow post-treatment application.

Normal post-treatment application consists of the center boom pipe and medium side nozzles.

Understanding the Control Box Light Modes

The computer inside the control box displays different light modes depending on the operation status/Understanding the Control Box Light Modesbattery level of the sprayer.



Figure 32

decal143-7137

1. Computer

2. GPS

Indicator Light	Indicates
Solid green, yellow, or red	The computer is on but is not connected to Bluetooth. The color of the light indicates the battery voltage that the computer is currently reading from the battery. Green is close to full charge; yellow is medium charge; and red means that the battery needs to be charged.
Breathing green, yellow, or red	The computer is on and is connected to a device with Bluetooth. The color of the light indicates the battery voltage that the computer is currently reading from the battery. Green is close to full charge; yellow is medium charge; and red means that the battery needs to be charged.
Flashing green, yellow, or red	One or more of the booms is on or Hose Reel Tracking is enabled. The color of the light indicates the battery voltage that the computer is currently reading from the battery. Green is close to full charge, yellow is medium charge, red means the battery needs to be charged.
Flashing orange	The control box is saving data to the computer. Do not unplug the control box while the orange light flashes to prevent corrupting the data. This happens when you disconnect a smart device connection, whether you choose to disconnect the smart device or the smart device goes out of range. The control box also saves data when you turn off the power. If the power button is turned off, the computer will flash orange while it saves the data, and then the light on the computer will turn off.
Flashing magenta	The computer is receiving a firmware update. It is normal for the light to appear solid for a short time and then flash at different rates while the firmware update is being downloaded. Once the process is finished, the computer restarts, and you will need to connect to the sprayer with your smart device.

Flashing green, then breathing cyan	When you choose to connect to WiFi, the computer starts flashing green as it tries to connect to the chosen WiFi network. When the network is connected, the light flashes cyan until it is able to establish a connection with the cloud. When it connects to the cloud it, starts breathing cyan. If there is a firmware update available, the computer will start downloading it and the color will change to magenta. If the computer does not change from flashing green, it could mean that you entered an incorrect password or that the network uses security measures that do not allow the computer to connect to the internet.
No status indicator light	<p>If there is no light from the computer, one of the following may be the cause:</p> <ul style="list-style-type: none"> • The power button is turned off and the computer is off. Turn the power button on to turn the computer on. • If the light goes away immediately after starting up the computer, check if the backup harness is plugged into the sprayer. If the backup harness is plugged in, the computer will sense that and shut down all functions, save data, and go to sleep. • If the light never turns on, check for a blown fuse (the fuses are located underneath the battery cover).

Navigating the App

Note: This information is for software version 1.3.2.

Profile Tab

The PROFILE tab is used to search and connect to WiFi networks (refer to [8 Connecting to WiFi \(page 16\)](#)). The PROFILE tab will also display the product ID, product version, and app version that are currently configured and installed.

The product version relates to the firmware version of the sprayer and is used frequently in diagnosing and troubleshooting. BOSS customers are notified when new firmware versions are available for download.

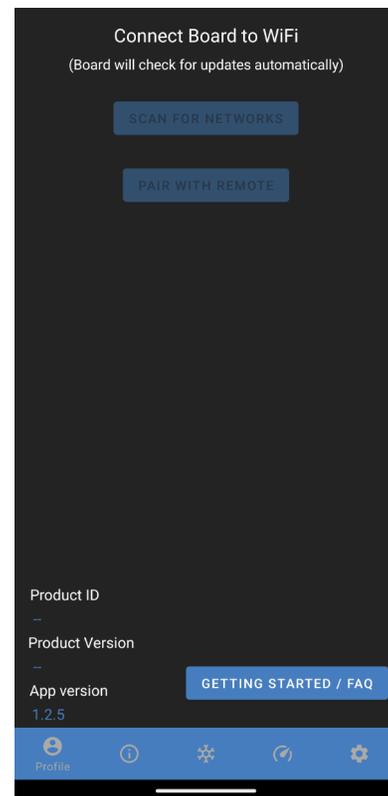


Figure 33

g409116

Details Tab

The DETAILS tab contains the job tracking, event tracking, and season tracking, as well as the total amount of liquid applied and engine hours. These numbers are retained by the control system on the sprayer and reflect the usage of the system.

Press the CONNECT button in the DETAILS tab to connect to the sprayer.

Job Tracking/Reporting: The first option you will see is the built in job tracking display. You can use this information for billing for work completed. To start tracking a job, select START. You will be asked to name the job if you prefer and then select Ok. All information is recorded while spraying or using the hose reel. Once the job is complete, select STOP. The job is then saved until the you are ready to submit the report.

When you select the SUBMIT REPORT button, you will be prompted to supply an email address to which the report will be sent. Additional notes may be added at this time as well. The report will be emailed as a CSV file and can be opened to view all recorded data.

Event: Event tracking can be useful to record information pertaining to a single event. This can be helpful when tracking production times and efficiencies of vehicles and operators. To clear all information, press the RESET button.

Season: Season tracking functions the same as event tracking. More information will be displayed such as average GPA (gallons per acre). To reset all information, press the RESET button.

Note: The event and season tracking will continuously count unless the tracking is reset.

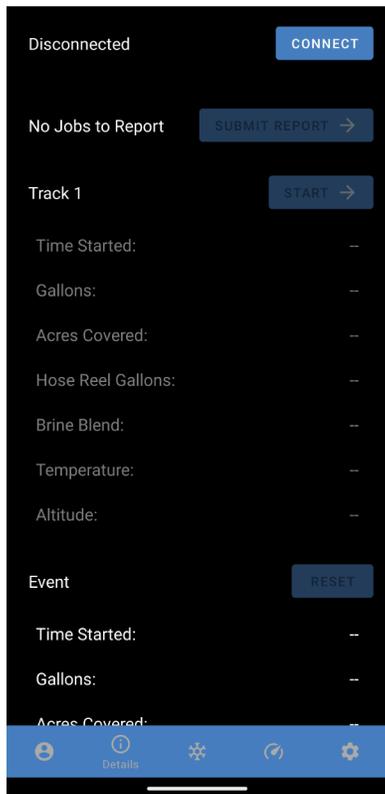


Figure 34

g409115

Spray Tab

The SPRAY tab is where all functions of the application process are controlled.

Vital system information is displayed on the top lines in the SPRAY tab in the app. This information includes the sprayer name/serial number that is connected, system voltage, ground speed, satellite connecting, heading, and the ambient temperature. Below the heading bar you, will find the switches to signal the LED work lights and strobes.

The work lights, strobe light, and operation mode switches are located below the vital system information in the SPRAY tab.

Operation Modes

Auto Mode: When in AUTO mode, you will be able to change the app rate, which always defaults to 80 gallons per acre (GPA). The + and – buttons adjust the GPA by 5 up or down for each press. The sprayer will automatically control the flow of solution to apply the desired application rate based on travel speed and spray width. The system will automatically close all valve sections when the application vehicle has come to a complete stop and open all signaled valve sections once the vehicle begins moving again.

Note: If the application vehicle is not moving, the valves will **not** open when signaled in Auto mode. This is normal and yields no cause for concern.

Manual Mode: When in MANUAL mode, the readout changes from App Rate to GPM (gallons per minute). By holding open or close, you will be allowing more or less liquid GPM to flow through and be applied out of the selected boom sections. Manual mode is most often used in tight areas where slow application speeds are required. By using manual mode, you are able to set a higher flow rate to help cut through snow pack and ice. You can open the valves at any time in manual mode whether the application vehicle is stationary or moving.

Hose Tracking: Select HOSE TRACKING when using the hose reel to track the gallons applied through the hose. When selected, the engine automatically adjust to 100% throttle and the proportional valve will fully open, allowing the most flow to be present when using the hose reel. When deselected, the engine will return to the previously set engine speed. Press this button whenever you use the hose, even if you are not tracking the amount of liquid applied.

Ice Buster: The ICE BUSTER button is used when you are spraying a steady rate but have a section of snowpack, ice, or a high-priority area that needs a higher application rate for a short stretch. By pressing this button, the boom sections will put out a predetermined rate that will be higher than

the standard application rates. This predetermined rate can be changed in the SETTINGS menu. Once deactivated, the system returns to the set rate in auto mode.

Run/Hold: The RUN/HOLD button activates or deactivates all boom sections that are currently activated. This is especially useful in situations where all 3 boom sections are being used and need to be turned off at the same time. Press the RUN/HOLD switch to shut off all booms and press again to turn all sections back on. This can be used for any boom configuration. You may also choose to put the booms on Hold while traveling between jobs to prevent the sections from accidentally being activated.

Boom Section Control: The Boom Section Control buttons are at the bottom of the SPRAY tab. These control the left, center, and right nozzles.

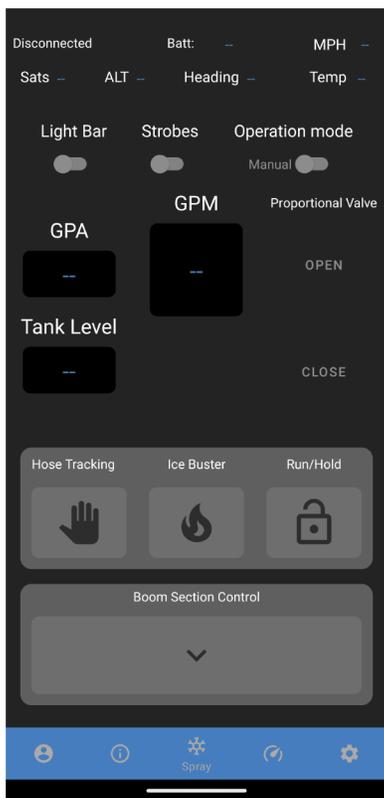


Figure 35

g409118

ACC Tab

Throttle and Choke Control: The throttle and choke are controlled by selecting the adjustment tabs on the ACC tab in the app. The choke positions are 0% (off), 50% (half), and 100% (full). Throttle positions function in the same way: 0% (idle) through 100% (WOT).

Engine Starter: Press and hold the STARTER button on the app to start the machine engine. Once the engine is running, stop pressing the button.

Note: The starter will stay engaged for 5 consecutive seconds and will automatically disengage. If cranking times of longer than 5 seconds are required, activate the starter button again.

Engine Stop: Press and hold the KILLSWITCH button until the engine shuts off.

Hose Reel Rewind Control: Press and hold the HOSE REEL REWIND button to rewind the hose. Use the toggle feature to disable this feature while spraying so that the hose reel is not accidentally activated.

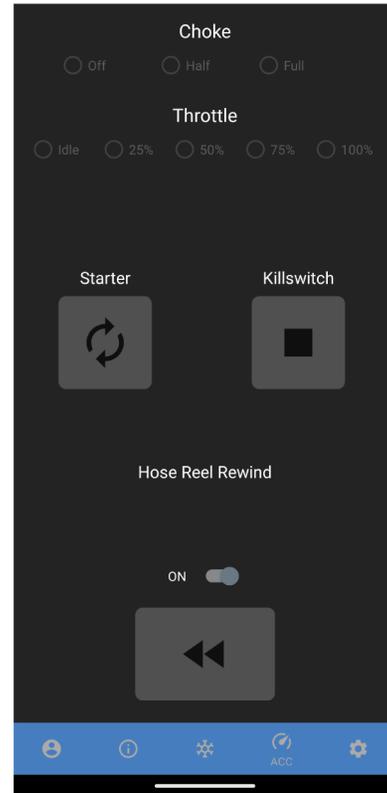


Figure 36

g409114

Settings Tab

Note: Most of the app settings should not be modified unless you have consulted with your authorized BOSS distributor first.

Note: If needed, press RESET TO DEFAULTS at the bottom of the app to reset the settings to factory defaults. Ensure to press SAVE after any settings changes or tank resets.

Tank Size: The tank size is pre-programmed to the size of the sprayer, except on Automated Power Bundles. If you are using an Automated Power Bundle, select the size of the tank that you are using.

Tank Level: You must reset the tank level every time the sprayer tank is filled up. To reset the tank level,

press RESET and then select SAVE before exiting the SETTINGS tab. You can also adjust the volume using the up and down buttons if a different volume is desired.

Brine Blend: You can set the brine blend when the sprayer is running. This helps track this information for job reports for job costs/margin tracking.

Boom Widths, Minimum Flow, Servo Speed, Flowmeter Calibration, and PID Speed settings should not be modified unless otherwise noted.

Ice Buster: The ice buster setting allows you to set the desired application rate when using the Ice Buster mode in the SPRAY tab in the app.

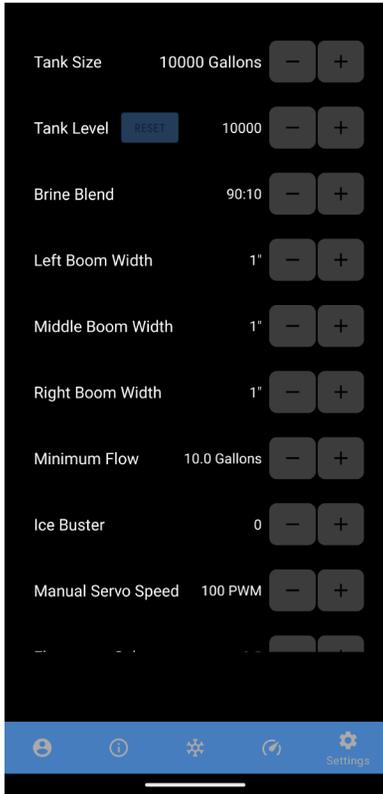


Figure 37

g409117

Understanding the Valve Positions

Proper valve positioning is vital to the sprayer working correctly for each given task.

Suction-Side Valves Versus Pressure-Side Valves

Suction-side valves: Any valves on the machine that are entering the lower portion of the pump housing

Pressure-side valves: Any valves on the machine that are high up or connected to the top portion of the pump housing

Using the Application Mode

Set the valves in the application mode positions when you are applying liquid de-icer. The following figure shows the valves in application mode.

Note: The most common error that is made in application mode is that the bypass valve is left open. This uses the majority of the pressure and liquid flow for the system and does not leave enough pressure for the sprayer or hose reel to work correctly.

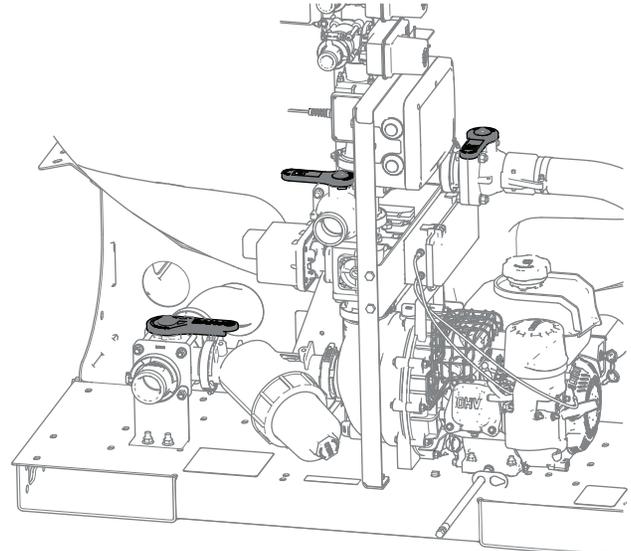


Figure 38

g573836

Using the Self-Fill Mode

You must connect the hose to the suction valve and configure the valves as shown in the following figure whenever you use the pump on the sprayer to self fill from a holding tank.

If the tank from which you are pulling is lower than the height of the pump, you may need to prime the pump by unscrewing the top cap on the pump and allow the air out of the system. In some cases, you may need to fill the pump housing with liquid to purge the air fully. This is usually not an issue when filling from a bulk storage tank, especially if the fill hose is pre-charged with liquid.

Note: A common mistake is that the bypass valve is left closed. The system will still fill this way because the valve has a hole that allows constant flow through the valve even when it is closed (to protect the pump from being deadheaded), but it will take an exceptionally long time.

During Operation

During Operation Safety

- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; substantial, slip-resistant footwear; long pants, and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Wear appropriate personal protective equipment as directed in Chemical Safety.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Operate the machine only in good visibility.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.
- Before backing up, look rearward and ensure that no one is behind you. Back up slowly.
- Never spray while people, especially children, or pets are nearby.
- Do not operate the machine near drop-offs, ditches, or embankments. The machine could suddenly roll over if a wheel goes over the edge or if the edge gives way.
- Reduce the speed when operating on rough terrain, uneven ground, and near curbs, holes, and other sudden changes in terrain. Loads may shift, causing the machine to become unstable.
- Stop the machine, shut off the engine, remove the key, engage the parking brake, and inspect for damage after striking an object or if there is an abnormal vibration in the machine. Make all necessary repairs before resuming operation.
- Slow down and use caution when making turns and crossing roads and sidewalks with the machine. Always yield the right-of-way.
- Use extra caution when operating the machine in adverse weather conditions, at higher speeds, or with a full load. Stopping time and distance increase in these conditions.
- Do not touch the engine or muffler while the engine is running or soon after it has shut off. These areas may be hot enough to cause burns.
- Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the

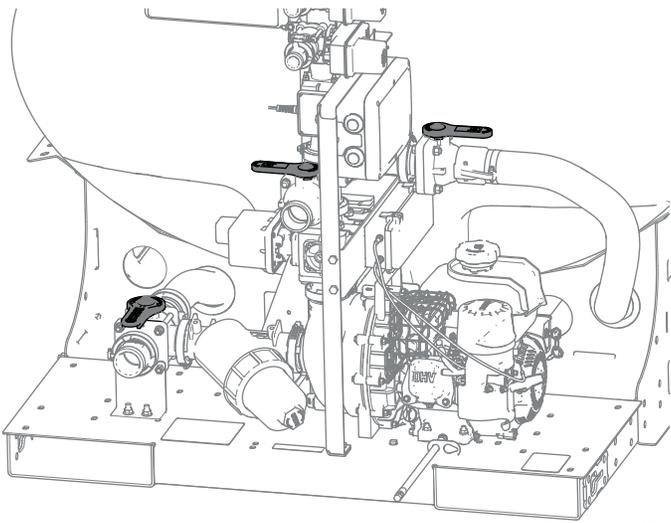


Figure 39

g573847

Using the Pump-Out Mode

The tank must have liquid in it. The hose must be connected to the pump-out valve and the valves need to be configured as shown in the following figure when you are using the pump to transfer liquid from the sprayer to another tank outside of the sprayer.

Note: A common mistake is leaving the bypass valve open. This still allows the pump-out to work, but it will be substantially slower than if it is set up properly as shown.

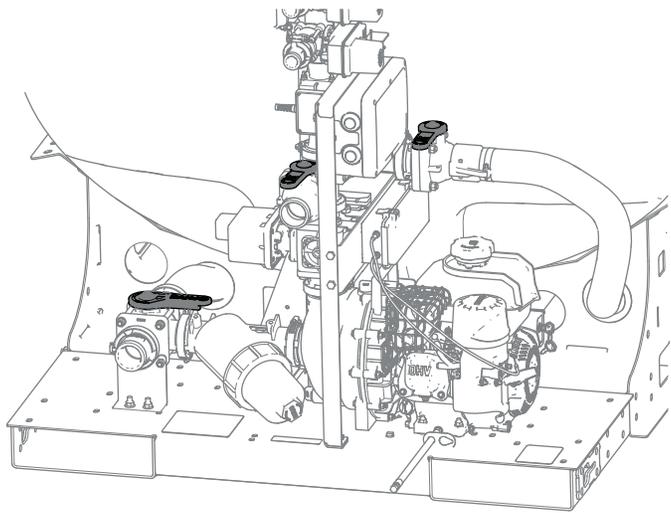


Figure 40

g573849

machine to cool before adjusting, servicing, cleaning, or storing it.

- Never run an engine in an area where exhaust gasses are enclosed.
- Use accessories and attachments approved by BOSS only.

Starting the Engine

1. Ensure that the spark-plug wire is connected to the spark plug.
2. Ensure that the fuel-shutoff valve is in the OPEN position.
3. Ensure that there is liquid in the tank.

Note: Running the engine without liquid in the tank may cause damage to the pump seal and pump housing.

4. With your phone or tablet connected to the sprayer, select the ACC tab in the app.
5. If the engine is cold, select FULL CHOKE and 50% THROTTLE.
Allow a few seconds for the choke actuator to move to full choke position.
6. Press the STARTER button.
7. Once the engine is running, select HALF CHOKE and allow the engine to warm.
8. When the engine is warm, select CHOKE OFF and select the desired engine throttle.

Note: Normal application requires that the engine throttle is set at 75% or 100%.

Using the Sprayer

1. With your phone or tablet connected to the sprayer, select the SPRAY tab in the app.
2. Ensure that the battery voltage is displayed in green and the satellite connection has been established.
3. Select the desired mode (AUTO or MANUAL).
 Refer to [Spray Tab \(page 25\)](#) for an explanation of each mode.
4. If AUTO mode is selected, verify your application rate.
Press the +/- buttons to make any changes.
5. If MANUAL mode is selected, a boom section must be open in order to see the flow read out.

Press the Open/Close buttons to make changes to flow.

6. Begin moving and signal the desired boom section(s) to open. You will see liquid flowing from the boom.

Understanding the Auto Mode Display

While spraying in AUTO mode, the display of GPA will show the instantaneous rate being applied. This number **will** change as travel speed increases or decreases. The GPA will be locked to the set rate under normal conditions. You will see the flow to the boom increase and decrease as the speed changes, especially on the boomless nozzles spray pattern.

Continue spraying until the desired area has been covered.

Understanding the Manual Mode Display

While spraying in MANUAL mode, the display of GPM (gallons per minute) flowing out of any boom section will be showing. To set the GPM, open the desired boom section and use the +/- keys to change the flow rate. The sprayer will hold this flow rate until there is a manual change to the flow rate.

The rate in GPA is also displayed to the left of the screen. This can be helpful as an instantaneous readout of what is being applied will be shown. Use this to gauge the flow rate (GPM) that you desire. Application rates (GPA) of 250+ are unnecessary and the flow rate could be reduced.

Continue spraying until the desired area is covered.

Switching Between Auto Mode and Manual Mode

You can switch between AUTO and MANUAL mode at any point during the spraying process.

If the user is going from AUTO to MANUAL mode, the sprayer will hold the last position of the servo and the flowrate (GPM) will be displayed.

If the user is switching from MANUAL mode to AUTO mode, the sprayer will adjust as needed to match the set application rate (GPA).

After Operation

After Operation Safety

- Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the

machine to cool before adjusting, servicing, cleaning, or storing it.

- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn, damaged, or missing decals.
- Do not mount or remove the sprayer tank with liquid in it.

Maintenance

Important: Refer to your engine owner’s manual for additional maintenance procedures.

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

Maintenance Safety

- Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Allow machine components to cool before performing maintenance.
- Allow only qualified and authorized personnel to maintain, repair, adjust, or inspect the machine.
- Before performing any maintenance, thoroughly clean and rinse the sprayer; refer to [Chemical Safety \(page 20\)](#).
- Chemicals used in the 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 safety data sheets (SDSs) for all chemicals used, and protect yourself according to the chemical manufacturer's recommendations.
 - Refuse to operate or work on the sprayer if chemical safety information is not available.
 - Do not fill, calibrate, or clean the machine while people, especially children, or pets are in the area.
- Do not clean spray nozzles by blowing through them or placing them in your mouth.
- Always wash your hands and other exposed areas as soon as possible after working with chemicals.
- To ensure that the entire machine is in good condition, keep all hardware properly tightened.
- To reduce the potential for fire, keep the engine area free of excessive grease, chemicals, grass, leaves, and dirt.
- If you must run the engine to perform a maintenance adjustment, keep your hands, feet, clothing, and any parts of your body away from the engine and any moving parts. Keep everyone away.
- If the machine requires a major repair or you need technical help, contact an authorized BOSS dealer.
- Modifying this machine in any manner may affect machine operation, performance, durability, or its use, and result in injury or death.
- Carefully release pressure from components with stored energy.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first hour	<ul style="list-style-type: none"> • Inspect the tank straps for proper attachment.
After the first 5 hours	<ul style="list-style-type: none"> • Change the engine oil.
Before each use or daily	<ul style="list-style-type: none"> • Check the engine-oil level. • Check the air cleaner. • Inspect the tank straps for proper attachment. • Wash the machine after each use.
Every 50 hours	<ul style="list-style-type: none"> • Clean the air cleaner (more often in dirty or dusty conditions).
Every 100 hours	<ul style="list-style-type: none"> • Check/adjust the spark plug. • Clean the sediment cup.
Every 100 hours or yearly, whichever comes first	<ul style="list-style-type: none"> • Change the engine oil.
Every 200 hours	<ul style="list-style-type: none"> • Replace the paper element. • Inspect all hoses and connections for damage and proper attachment.

Maintenance Service Interval	Maintenance Procedure
Every 500 hours	<ul style="list-style-type: none"> • Replace the spark plug.
Before storage	<ul style="list-style-type: none"> • Grease and cap all connection points. • Rinse the sprayer tank. • Drain the pump. • Condition the spray system.

Lubrication

Lubricating the Machine

Service Interval: Before storage

Use dielectric grease on all connection points and cap them.

Engine Maintenance

Engine Safety

- Shut off the engine before checking the oil or adding oil to the crankcase.
- Do not change the governor speed or overspeed the engine.

Engine Oil Specification

Type: API service classification SL or higher

Viscosity: select the oil viscosity according to ambient temperature; refer to [Figure 41](#).

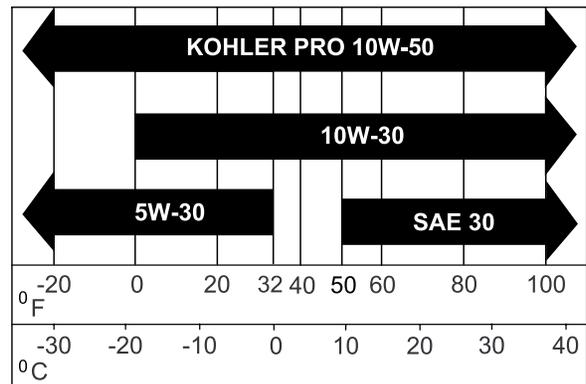


Figure 41

g460149

Checking the Engine-Oil Level

Service Interval: Before each use or daily

Note: The best time to check the engine oil is when the engine is cool before it has been started for the day. If it has already been run, allow the oil to drain back down to the sump for at least 10 minutes before checking it.

1. Clean the area around the oil-filler cap ([Figure 42](#)).

Changing the Engine Oil

Service Interval: After the first 5 hours—Change the engine oil.

Every 100 hours or yearly, whichever comes first—Change the engine oil.

Crankcase Capacity: 0.60 L (0.63 US qt)

1. Start the engine and run it for a few minutes to warm the engine oil; then shut off the engine.
2. Remove the plug-in end of the hose and place the end of the hose into a drain pan with a 1 L (1 US qt) capacity.
3. Allow the oil to drain.
4. Install the plug-in end of the hose and wipe up any spilled oil.
5. Dispose of the waste oil properly.

Note: Recycle it according to local codes.

6. Fill the crankcase with the specified oil; refer to [Engine Oil Specification \(page 32\)](#) and [Checking the Engine-Oil Level \(page 32\)](#).

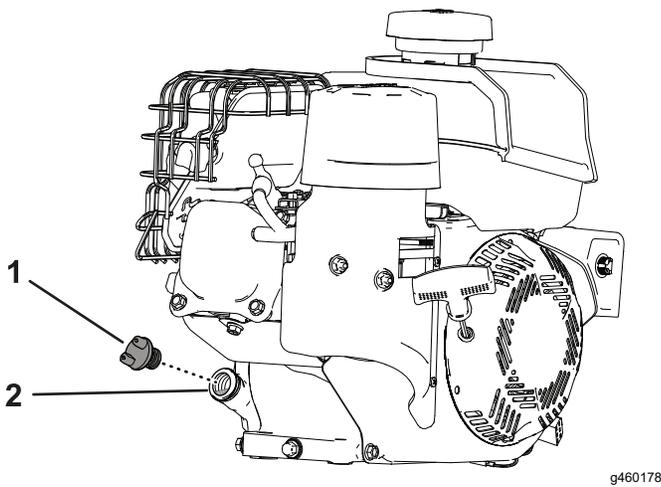


Figure 42

g460178

1. Oil-filler cap
2. Filler port

2. Remove the oil-filler cap by rotating it counterclockwise.

3. Check the oil level ([Figure 43](#)).

The engine is full of oil when the oil level is at the bottom edge of the oil-fill port.

Note: If the oil level is below the bottom edge of the oil-fill port, add enough of the specified oil to raise level to the bottom edge of the oil-fill port.

Important: Do not overfill the crankcase with engine oil.

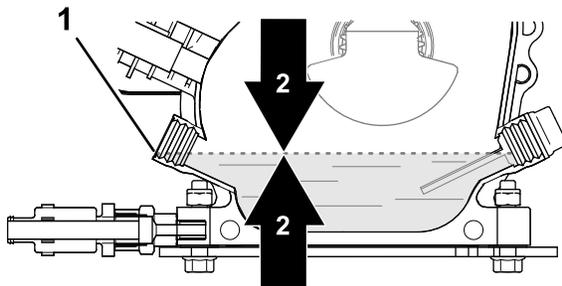


Figure 43

g281195

1. Oil-fill port (bottom edge)
2. Engine-oil level

4. Install the oil-filler cap and wipe up any spilled oil.

Checking the Air-Filter Elements

Service Interval: Before each use or daily—Check the air cleaner.

1. Remove the air-cleaner cap by turning it counter-clockwise.

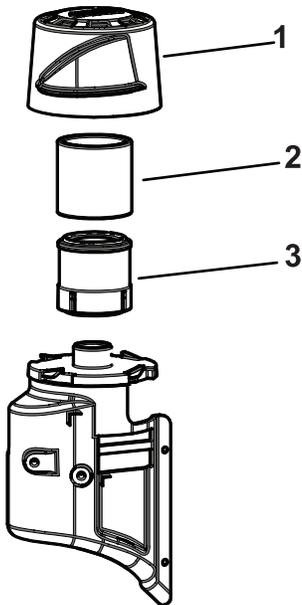


Figure 44

g460187

1. Air-cleaner cover
2. Pre-cleaner element
3. Paper air-filter element

2. Clean the air-cleaner cover thoroughly.
3. Check the pre-cleaner element for debris.
Clean the pre-cleaner element if needed; refer to [Cleaning Pre-Cleaner Element \(page 34\)](#).
4. Check the paper air-filter element for debris; replace if necessary.
5. Install the air-cleaner cover.

Servicing the Air Cleaner

Service Interval: Every 50 hours—Clean the air cleaner (more often in dirty or dusty conditions).

Every 200 hours—Replace the paper element.

Cleaning Pre-Cleaner Element

1. Remove the air-cleaner cap by turning it counter-clockwise.
2. Remove the pre-cleaner element from the paper element.
3. Replace or wash the pre-cleaner in warm water with detergent. Rinse and allow to air dry.

4. Lightly oil the pre-cleaner with new engine oil and squeeze out the excess oil.

Cleaning the Paper Air-Filter Element

Clean the paper element by tapping the filter element several times on a hard surface to remove the dirt.

Important: Never brush dirt off the element or use compressed air to remove dirt; brushing forces dirt into the fibers, and compressed air will damage the paper filter.

Assembling the Air-Filter Elements

1. Install the pre-cleaner over the paper element.
2. Install the air-cleaner cover.

Servicing the Spark Plug

Service Interval: Every 100 hours—Check/adjust the spark plug.

Every 500 hours—Replace the spark plug.

Type: Kohler 1413211 spark plug or equivalent

Air Gap: 0.70 to 0.80 mm (0.028 to 0.031 inch); refer to [Figure 46](#).

1. Disconnect the spark-plug wire from the spark plug.

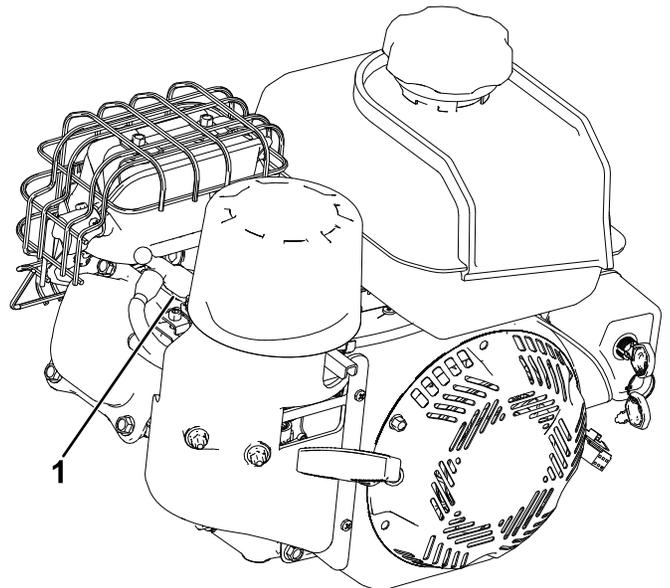


Figure 45

g460272

1. Spark-plug wire
2. Clean around the spark plug, and remove the plug from the cylinder head.

Important: Replace a cracked, fouled, or dirty spark plug. Do not sand blast, scrape, or clean the electrodes, because engine damage could result from grit entering the cylinder.

- Set the air gap to 0.70 to 0.80 mm (0.028 to 0.031 inch) as shown in [Figure 46](#).

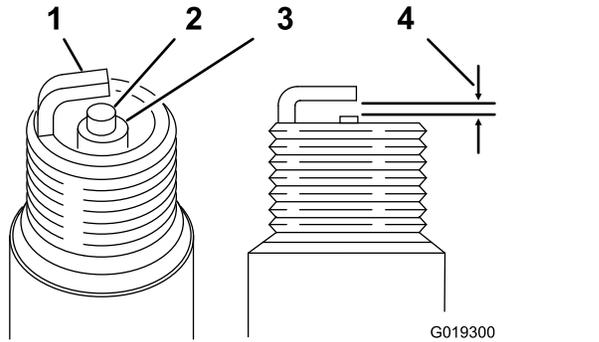


Figure 46

- | | |
|---------------------|--|
| 1. Side electrode | 3. Insulator |
| 2. Center electrode | 4. 0.70 to 0.80 mm (0.028 to 0.031 inch) |

- Install the correctly gapped spark plug carefully by hand to avoid cross-threading.
- After the spark plug is seated, tighten it with a spark-plug wrench as follows:
 - When installing a new spark plug, tighten it 1/2 turn after the spark plug seats, to compress the gasket.
 - When installing the original spark plug tighten it 1/8 to 1/4 turn after the spark plug seats to compress the gasket.

Important: A loose spark plug can overheat and damage the engine. Overtightening the spark plug can damage the threads in the cylinder head.

- Connect the spark-plug wire to the spark plug.

Fuel System Maintenance

Cleaning the Sediment Cup

Service Interval: Every 100 hours—Clean the sediment cup.

- Move the fuel-shutoff valve to the OFF position ([Figure 47](#)).

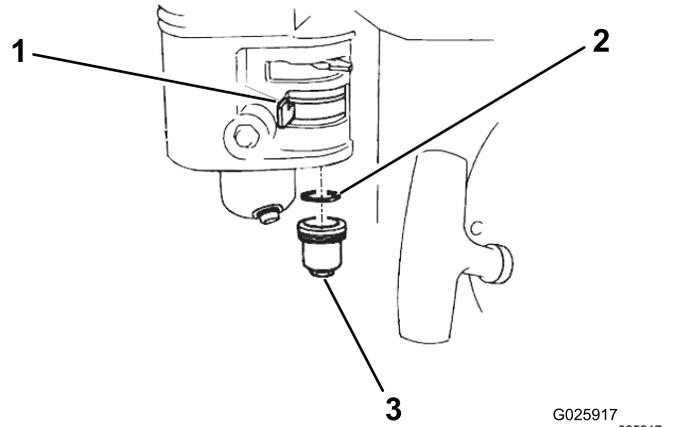


Figure 47

- | | |
|-----------------------|-----------------|
| 1. Fuel-shutoff valve | 3. Sediment cup |
| 2. O-ring | |

- Remove the fuel sediment cup and O-ring ([Figure 47](#)).
- Check the O-ring for wear and damage; replace the O-ring if it is worn or damaged.
- Wash the sediment cup and O-ring in nonflammable solvent, and dry them thoroughly.
- Place the O-ring in the fuel-shutoff valve and install the sediment cup ([Figure 47](#)). Tighten the sediment cup securely.

Electrical System Maintenance

Electrical System Safety

- Disconnect the battery before repairing the machine. Disconnect the negative terminal first and the positive last. Connect the positive terminal first and the negative last.
- Charge the battery in an open, well-ventilated area, away from sparks and flames. Unplug the charger before connecting or disconnecting the battery.
- Wear protective clothing and use insulated tools.

Replacing the Fuses

The fuse block is located underneath the battery box cover.

There are 2 fuses.

- 40 amp—hose reel and acc power
- 10 amp—control board power

Sprayer System Maintenance

Inspecting the Tank Straps

Service Interval: After the first hour
Before each use or daily

The machine is equipped with stainless steel tank bands. It is important to frequently check the bands to ensure that the straps remain tight. If a band can move freely by hand, it should be tightened using the side and top adjustment bolts. Do not over tighten, as tank damage may occur.

Inspecting the Hoses

Service Interval: Every 200 hours—Inspect all hoses and connections for damage and proper attachment.

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 damaged hoses and fittings.

Pump Maintenance

Inspecting the Pump

Have an authorized BOSS distributor check the pump seals for damage and replace if necessary.

Cleaning

Washing the Machine

Service Interval: Before each use or daily

Wash the machine after each use using water alone or with a mild detergent. You may use a rag when washing the machine.

Important: Do not use brackish or reclaimed water to clean the machine.

Note: Do not use power-washing equipment to wash the machine. Power-washing equipment may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water near the engine and onboard charger.

Rinsing the Tank

Service Interval: Before storage

After the season is complete, rinse out the sprayer tank and run fresh water through the entire system to wash out any salt residue.

Draining the Pump

Service Interval: Before storage

Remove the drain plug on the bottom of the pump to drain excess water from the pump.

Conditioning the Sprayer System

Service Interval: Before storage

After rinsing the tank, add RV antifreeze to the tank and run it through the entire system.

Open all valves to ensure that no water is present inside the ball valve.

Remove the filter housing to drain water.

Storage

Storage Safety

Shut off the engine, remove the key (if equipped), wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.

Preparing the Machine for Storage

1. Disconnect the negative terminal first and the positive last. Connect the positive terminal first and the negative last.
2. Wash the machine; refer to [Washing the Machine \(page 37\)](#).
3. Rinse the sprayer tank and sprayer components; refer to [Rinsing the Tank \(page 37\)](#).
4. Drain the sprayer tank as completely as possible.
5. Condition the sprayer tank; [Conditioning the Sprayer System \(page 37\)](#).
6. Grease and cap all connection points; refer to [Lubricating the Machine \(page 32\)](#).
7. Drain the pump; refer to [Draining the Pump \(page 37\)](#).

California Proposition 65 Warning Information

What is this warning?

You may see a product for sale that has a warning label like the following:



WARNING: Cancer and Reproductive Harm—www.p65Warnings.ca.gov.

What is Prop 65?

Prop 65 applies to any company operating in California, selling products in California, or manufacturing products that may be sold in or brought into California. It mandates that the Governor of California maintain and publish a list of chemicals known to cause cancer, birth defects, and/or other reproductive harm. The list, which is updated annually, includes hundreds of chemicals found in many everyday items. The purpose of Prop 65 is to inform the public about exposure to these chemicals.

Prop 65 does not ban the sale of products containing these chemicals but instead requires warnings on any product, product packaging, or literature with the product. Moreover, a Prop 65 warning does not mean that a product is in violation of any product safety standards or requirements. In fact, the California government has clarified that a Prop 65 warning "is not the same as a regulatory decision that a product is 'safe' or 'unsafe.'" Many of these chemicals have been used in everyday products for years without documented harm. For more information, go to <https://oag.ca.gov/prop65/faqs-view-all>.

A Prop 65 warning means that a company has either (1) evaluated the exposure and has concluded that it exceeds the "no significant risk level"; or (2) has chosen to provide a warning based on its understanding about the presence of a listed chemical without attempting to evaluate the exposure.

Does this law apply everywhere?

Prop 65 warnings are required under California law only. These warnings are seen throughout California in a wide range of settings, including but not limited to restaurants, grocery stores, hotels, schools, and hospitals, and on a wide variety of products. Additionally, some online and mail order retailers provide Prop 65 warnings on their websites or in catalogs.

How do the California warnings compare to federal limits?

Prop 65 standards are often more stringent than federal and international standards. There are various substances that require a Prop 65 warning at levels that are far lower than federal action limits. For example, the Prop 65 standard for warnings for lead is 0.5 µg/day, which is well below the federal and international standards.

Why don't all similar products carry the warning?

- Products sold in California require Prop 65 labelling while similar products sold elsewhere do not.
- A company involved in a Prop 65 lawsuit reaching a settlement may be required to use Prop 65 warnings for its products, but other companies making similar products may have no such requirement.
- The enforcement of Prop 65 is inconsistent.
- Companies may elect not to provide warnings because they conclude that they are not required to do so under Prop 65; a lack of warnings for a product does not mean that the product is free of listed chemicals at similar levels.

Why does BOSS include this warning?

BOSS has chosen to provide consumers with as much information as possible so that they can make informed decisions about the products they buy and use. BOSS provides warnings in certain cases based on its knowledge of the presence of one or more listed chemicals without evaluating the level of exposure, as not all the listed chemicals provide exposure limit requirements. While the exposure from BOSS products may be negligible or well within the "no significant risk" range, out of an abundance of caution, BOSS has elected to provide the Prop 65 warnings. Moreover, if BOSS does not provide these warnings, it could be sued by the State of California or by private parties seeking to enforce Prop 65 and subject to substantial penalties.

BOSS

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