



LOW PROFILE UTV SPRAYER



OPERATOR'S MANUAL

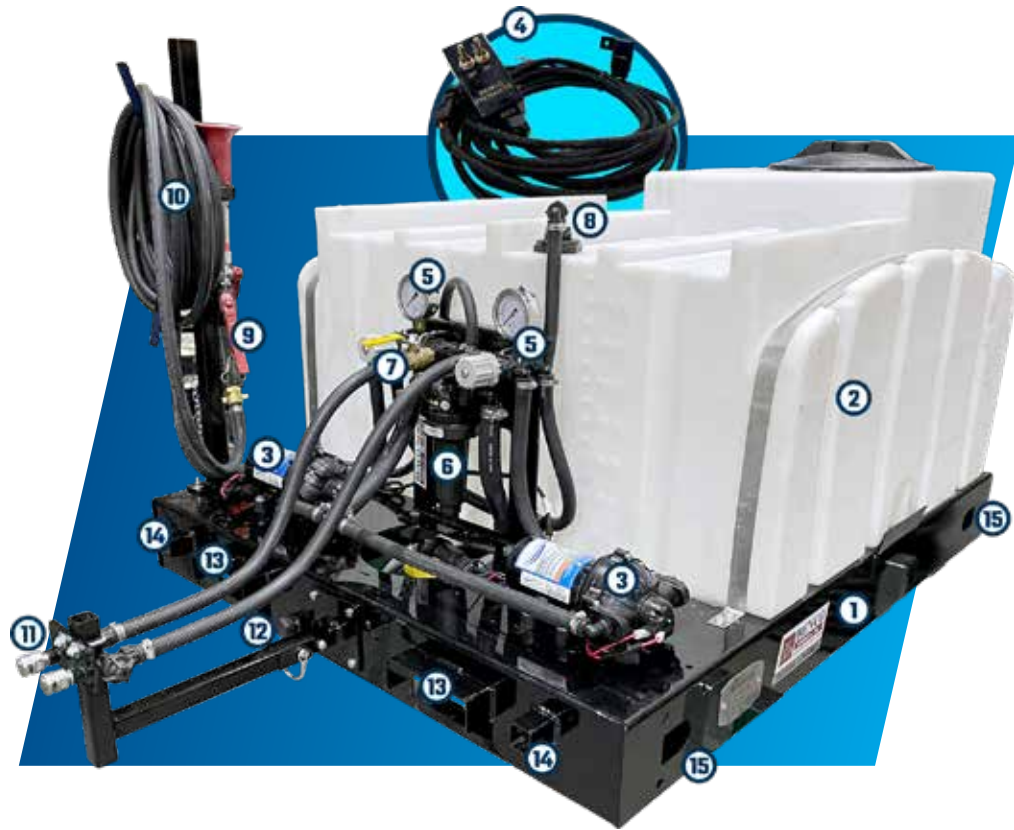
Rev. 6.24.01

FOR SPRAYER MODELS:

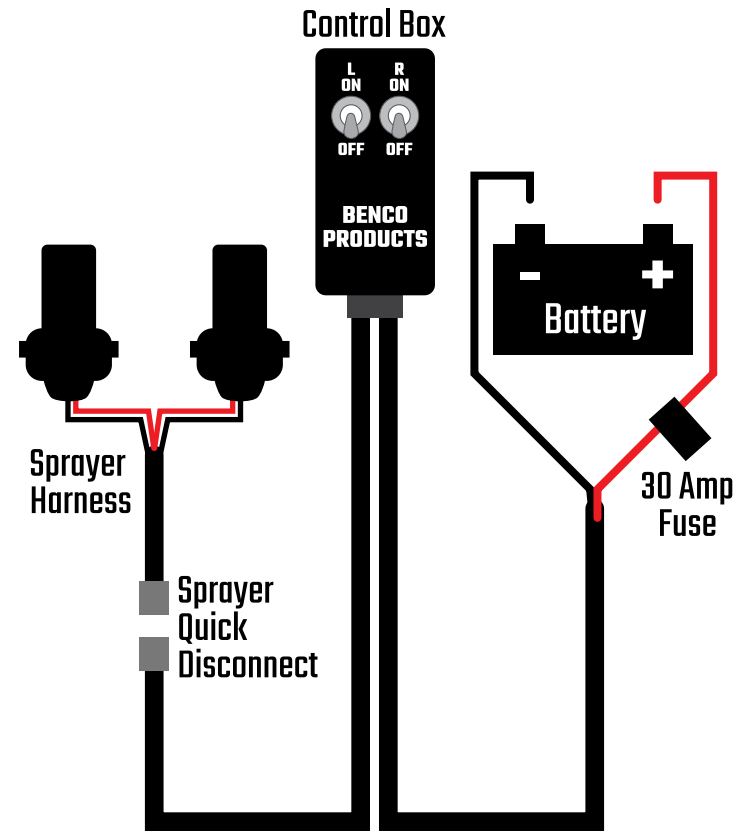
LPSI-B050W, LPSI-B080W, LPSI-B100W
LPSI-B050Y, LPSI-B080Y, LPSI-B100Y



Get To Know Your New BENCO Sprayer



Wiring In Your BENCO Sprayer



- 1** Heavy-duty 14 gauge steel powder coated frame
- 2** Rugged 50, 80 or 100 gallon full drain tank
- 3** Dual 3.0 GPM 12v pumps feeds left and right sections independently for fenceline spraying
- 4** Two-switch wired control box can be mounted or hang free in the cab. Next to you, and out of the spray.
- 5** Dual Banjo pressure regulators w/ liquid-filled gauges
- 6** Banjo inline filter strainer to minimize clogs
- 7** Brass valve turns off the left spray nozzle (or section) for wand-only spraying
- 8** Return line can be used for tank agitation
- 9** Professional Valley Industries adjustable spray gun

- 10** Hose stand with 25' of 1/2" flexible rubber hose. Longer hoses & hose reels are available options.
- 11** Standard Boominator boomless nozzles give a full 32' of coverage (16' on each side)
- 12** 3/4" Quick-fill port controlled by a Banjo valve that is protected inside the skid
- 13** Fork receivers for easy handling, even with a full tank
- 14** Mounting point for optional 12' or 18' spray booms
- 15** D-shaped tie down mounting points. Strap sprayer from the front hole to the rear tie down and vice versa, creating a X pattern on each side.

Wiring the Power Harness with Control Box

Your BENCO Sprayer runs on standard 12V DC power. Simply hook the red cable in the harness to the positive side of the battery and the black wire to the negative side of the battery.

We do not recommend using auxiliary power ports or hooking into the fuse box. While the pumps do not need an excessive amount of power, they do draw more than most circuits in your vehicle are designed to deliver. Connecting directly to the battery is the best way to ensure years of trouble-free use.

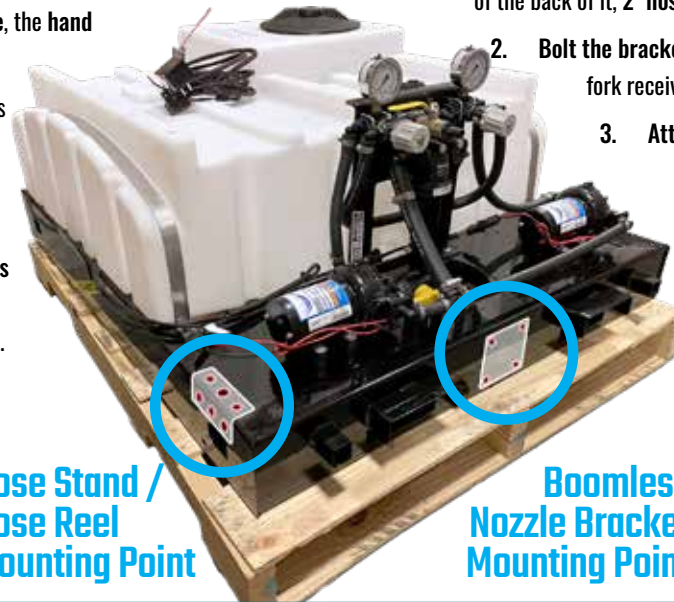
Depending on your vehicle, you may need to extend the power wires in your harness. Please use a comparable sized wire (12 gauge or heavier) to ensure the proper functioning of your sprayer. If you notice your wires or connections are getting hot during use, it is likely because they are not designed to carry the amount of amperage drawn by the pumps (up to 30 amps).

Power harness extensions are also available directly from BENCO.

Installing the Hose Stand or Reel

For shipping reasons, your sprayer will likely arrive in three pieces. The sprayer itself, the hand wand with hose management, and the boomless nozzle bracket with nozzles. The pieces should come with all the hose and plumbing assembled, they just need to be bolted to the frame and have the hoses attached.

1. **Unbox your hose reel or stand.** You should have the **stand / reel, the hose, the hand wand, 4 bolts, 4 nuts and hose clamps.**
2. You will mount this assembly to holes drilled in the left frame rail towards the rear of the sprayer, next to the left pump. You may also choose to mount it on the right side, but it is designed to sit on the driver's side of the UTV.
3. Have one person hold the reel or stand in place while the second one bolts it to the frame. Insert the bolt through the holes in both the bracket and the frame. It does not matter if the bolt or the nut faces inside the frame. Whichever is easier for you.
4. **Attach the nut and get it finger tight.** Repeat for the remaining bolts.
5. When you have all the bolts loosely in place, make sure the reel or stand is firmly seated on the frame, **then lock the bolts down tightly.** We use a cordless impact gun to save time, but hand tools work just as well.



Hose Stand /
Hose Reel
Mounting Point

Installing the Boomless Nozzles

The folding bracket for the boomless nozzles bolts into four holes on the sprayer's frame between the two fork receivers.

1. **Unbox your boomless bracket.** You should have the bracket with some check valves and hoses sticking out of the back of it, **2 hose clamps, 4 bolts, 4 nuts, 1 Left and 1 Right Boominator tip.**
2. **Bolt the bracket to the four pre-drilled holes in the center of the rear frame, between the two fork receiver holes.** Make sure the bracket is level and tighten the bolts.
3. **Attach the Left & Right Boominator nozzles on their respective sides.** Apply some thread tape or pipe dope to the threads and tighten them onto the bracket. When the nozzles are installed correctly, the logo should be perfectly level. If they are crooked, your spray pattern will likely be off. You want the left and right spray patterns to slightly overlap in the center (see back cover).
4. Slide the hose clamps on the hoses and **secure the hoses to the left and right hose barb.** The left one comes out of the brass valve, the right one will be on the only hose barb on right regulator. Tighten the hose clamps.
5. **Congratulations!** Your sprayer is assembled and ready to spray!

Boomless
Nozzle Bracket
Mounting Point

Congratulations! Your hose reel or stand is securely mounted to your sprayer! Now we just have to hook up the hose.

Attaching the Hose

The hose should be hanging freely from the input side of the hose reel or may be loose if you chose the stand. You will attach the hose onto the upward pointing hose barb in the middle of the Pressure Control Center.

1. Slide the supplied hose clamp on the hose. Then lubricate both the inside of the hose and the hose barb with a little water or lubricant to help you slide the hose on the barb. Slide the hose on the hose barb fitting.
2. Now slide the hose clamp up so it will clamp down on the hose barb through the hose and **tighten it with a phillips screwdriver or nut driver until it is tight.** You want it tight, but don't crush the hose barb fitting.

If your spray gun did not come attached, repeat the above steps to attach the hose barb on the hand wand to the other end of the hose. Coil the hose on the stand. You are ready to go out and start hand spraying!



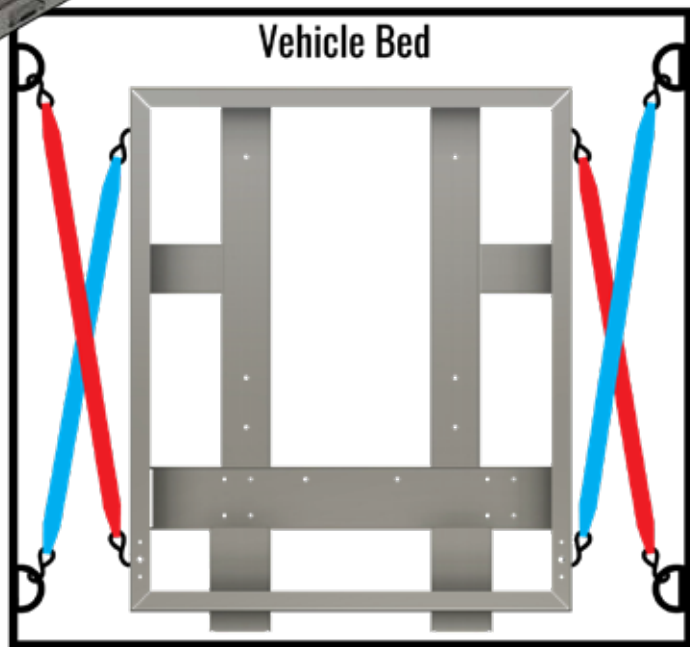
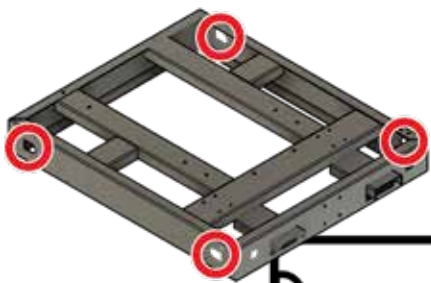
Folding the Boomless Nozzle Mount for Storage

Your BENCO Boomless kit comes with a folding boomless nozzle mount. This is a simple convenience feature that makes it easier to move your sprayer with a forklift and more compact for storage when you aren't spraying. Folding or unfolding it is a very simple toolless operation.

Folding Up the Boomless Mount:

1. Remove the pin that holds the mount in place.
2. Rotate the boom ninety degrees upward.
3. Line up the boom's pin holes with those on the vertical arm of the mounting bracket.
4. Insert the pin. Easy as pie.
5. Check the rubber feed lines for pinching. You may have to manually adjust them to keep a smooth arc in the hose.
6. To unfold, repeat in the reverse order.





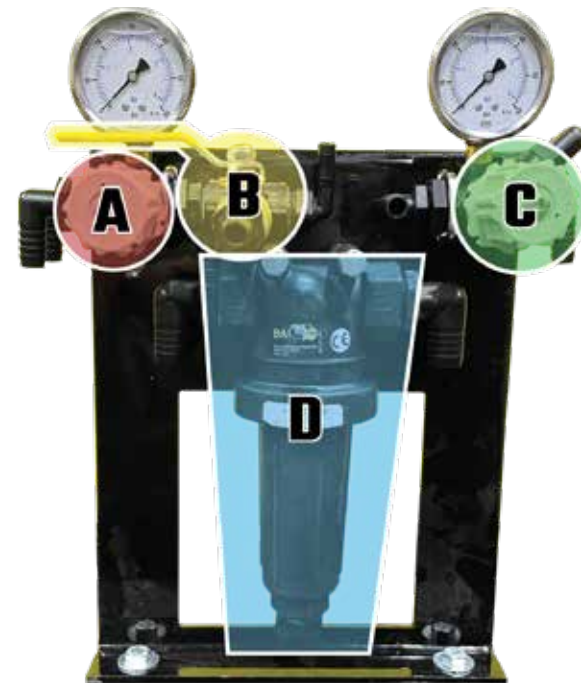
Securing Your BENCO Sprayer

For the safety of yourself, your UTV and your sprayer, you **MUST** securely fasten your BENCO Sprayer to your vehicle before use. This is a heavy piece of machinery capable of holding over 800 lbs of sloshing water being driven over uneven ground. If not properly secured, it may move around in the field where bad things can start to happen quickly. Safety is not to be taken lightly when using heavy machinery.

The best way to secure your sprayer is to bolt it to the frame of your vehicle. However, this is rarely a practical solution.

Most of the time, you will be strapping your sprayer down into the bed of your UTV. Your sprayer is designed with “D” shaped holes in the side of the frame at all four corners specifically for this purpose.

Use ratchet straps with the proper load rating to tightly **secure the sprayer frame to the vehicle bed in an “X” pattern**, securing the back of the sprayer to the front of the bed and vice versa on each side. This configuration will help prevent the sprayer from sliding backward and forward during use and help maintain proper nozzle positioning during spraying.



The Pressure Control Center

Your BENCO Sprayer is designed with simple manual controls. All parts are easy to access, maintain, and replace if necessary. The pressure control center is where you can manage system pressures, clean or replace the screen, and disable the boom valve for wand-only spraying.

Your system will not come with a preset pressure. Please reference the speed and pressure chart for the tips you are using to determine the correct pressures to set the regulators to. Refer to the back cover for the boomless tip chart.

A) Left Throttling Valve.

Turn the gray knob to adjust the pressure to the hand wand and the left boom nozzle(s). Pressure is shown on the gauge directly above it. On a boomless system, 30 PSI will generally achieve around 10 GPA at 5 MPH. Refer to chart.

If you experience surging when using the hand wand, decrease pressure until the surging subsides. Wand use while the pump is surging is unpleasant and may eventually shorten the life of the pump's pressure switch.

B) Ball valve disables left boom nozzle for wand-only spraying

Turn the ball valve handle perpendicular to the valve's body to turn off the left boom for wand-only spraying. Turn the handle parallel to allow liquid to flow back to the boom nozzle.

C) Right throttling valve

Turn the gray knob to adjust the pressure to the right boom nozzles. Pressure is shown on the gauge directly above it.

D) Line strainer

A 3/4" line strainer (Banjo LST-075-50) with 50 mesh stainless steel screen is provided to minimize potential clogs. To clean, turn off the system and unscrew the bottom bowl to access the screen. Clean or replace the screen as necessary. Hand tighten only

Running your new BENC0 Sprayer

The Control Box

Your BENC0 Sprayer is designed for simplicity and functionality. Our simple dual switch control box controls each 12V motor individually. On most sprayers, the system is plumbed with a one pump running 3.0 GPM to the left boom or nozzle, the other supplying the right side.*

This system gives you the ability to switch from full to fence line spraying and back again on the fly with the flick of a single switch.

BENC0's controller is mounted on a flexible cord that runs into the UTV cab. The system has a quick disconnect plug so that you can take out the sprayer, but leave the control box wired in.

The control box may be positioned anywhere in the cab that is convenient for you. You can permanently mount the control box to your UTV or just leave it loose on the seat. Whichever you prefer. Rigid mounting is not required.

This set up is great for customers with an enclosed cab UTV, as they can roll up the windows, turn on the air conditioning, and stay away from the spray.

Running the Control Box

To start spraying, simply toggle the corresponding switches to ON.

This turns on the electric pump(s) which pressurize the system in less than a second.

Full Spray (32' pattern*)

Toggle both switches to the "ON" position

System Off

Toggle both switches to the "OFF" position

Right-side fence line spraying (16' pattern*)

Toggle L to "OFF" and R to "ON"

The spray gun will not be active.

Left-side fence line spraying (16' pattern*)

Toggle L to "ON" and R to "OFF."

The spray gun will be active any time the left side of the system has pressure.

Wand-only spraying (up to 25' pattern*)

Turn the ball valve mounted on the left regulator of the Pressure Control Center so that the valve handle is perpendicular to the valve's body, thereby blocking flow to the left boom and diverting all pressure to the spray gun.

Toggle L to "ON" and R to "OFF." Adjust the regulating valve as necessary if the pump begins to surge.



Using the Spray Gun

On a BENC0 sprayer, **the hand wand is run by the LEFT pump.** The hand wand will always be active any time the left pump is running.

For maximum pressure, we recommend using the spray gun without running the left spray tip(s). There is a handy ball valve right under the left pressure gauge that will allow you to shut off liquid flow to the left boom nozzles. Turn the valve's handle perpendicular to the valve body to shut off flow to the left rear boom. To resume spraying with the boom, turn the handle parallel to the valve's body.

However, the spray gun will be active any time the left pump is running, so you do NOT need to shut off the left boom to use the hand wand. Your BENC0 sprayer is designed so that you can spot spray with the wand while you are spraying with the boom. You just may not have quite as much reach with the spray gun as you are dividing pressure between the two.

You may notice the pump surging when in wand-only spraying mode. This is a normal safety feature of the pump. Surging is the result of the pump turning off and on due to the pressure building up and triggering the pressure safety switch on the pump.

To eliminate surging, adjust the pressure using the left throttling valve until the surging subsides and the desired hand gun pressure is achieved. Adjusting the pressure regulator adjusts the amount of pressurized water being diverted back to agitate the tank. With enough water recirculating, the pump will keep running.

There are several professional quality **spray gun options** available for your BENC0 Sprayer. Our newest and most popular is the Valley Industries adjustable wand. This hand wand can easily reach out 20+ feet and allows you to adjust the spray pattern from mist to stream from the side of the gun as you spray without getting any chemicals on your hands.



Another popular option is our long-reach brass spray wand. This is a perennial favorite and is fully serviceable. It will come with an adjustable tip that you twist to adjust from stream to mist.

BENC0 has a variety of spray guns to meet any need. Please specify which gun you prefer when ordering your sprayer.

* Alternately, some boomed systems are plumbed so the R controls the boom, and the L controls the spray gun. This works especially well with the 12 or 16 foot booms as there is plenty of volume for 6-11 tips.

Filling or Draining the System

Your BENCO Sprayer is equipped with a 3/4" Pipe Thread Quick-fill or Quick-drain port on the front of the frame. This may be a convenient way to fill or empty the tank for some users. Use this port to fill your tank from ground storage or to drain any excess treated water from the sprayer's tank into a storage tank via a hose for later use.

Just add the fitting of your choice to the port to the standard 3/4" female pipe thread port that best fits your needs. The two most popular fittings are a male camlock fitting or a garden hose adapter.

Filling the tank

The easiest way to fill your sprayer is to remove the lid and fill the tank. However, a convenient quick-fill or quick-drain valve is also mounted in the rear of the sprayer next to the left fork receiver. It features a standard 3/4" MPT thread that can be adapted to accept any style of connector you choose. We recommend a male camlock or garden hose adapter.



Draining the tank

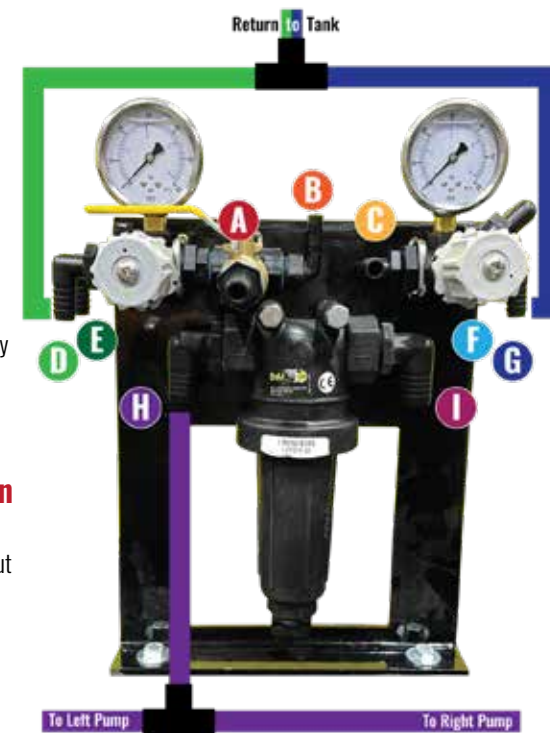
To drain the system, just open the valve (turn the handle parallel to the body of the valve) and everything will run out through the quick-fill port. Your BENCO sprayer is designed with a total-drain tank, so you should get most of the water out naturally with gravity.

To fill the tank, first attach your hose to the valve (via the fitting of your choice), turn on the water / pump, and open the valve.

There is also an emergency shut-off valve under the tank that needs to be open, but that valve can remain open unless you are storing the sprayer with water in it or you spring a leak and need to fix the plumbing.

The Ins & Outs of the Pressure Control Center

The Pressure Control Center has a lot going on in a small space. It can get confusing quick, especially once a few hoses have been removed. Use this handy guide to understand all the ins and outs that make your sprayer function so well.



A. Out To the Left Boom Section

The hose barb pointing straight out of the brass valve sends pressure regulated fluid out to the left boom.

B. Out To the hand Wand

The center hose barb that points upward coming out of the left regulator sends pressure regulated fluid out to the hand wand.

C. Out To the Right Boom Section

The rearward pointing hose barb coming out of the right regulator sends pressure regulated fluid out to the right boom.

D. Left Pump Tank Return (via T fitting)

The hose barb further from the bracket is the overflow relief from the left regulator. It Ts in with the right side and returns to the tank to relieve pressure and agitate the tank.

E. In From Left Pump (full pressure)

The hose barb closest to the bracket takes in the full pressure fluid directly from the left pump.

F. In from Right Pump (full pressure)

The hose barb closest to the bracket takes in the full pressure fluid directly from the right pump.

G. Return Excess Pressure to Tank (via T fitting)

The hose barb further from the bracket is the overflow relief from the right regulator. It Ts in with the left side and returns to the tank to relieve pressure and agitate the tank.

H. Out to Feed Pumps (via T to pumps)

This takes the freshly strained water and feeds the pumps via a T fitting.

I. In from Tank (main in)

This is the main line into the pressure center from the tank.

Using a Boom

BENCO Sprayers have mounting brackets for a spray boom integrated into every frame. There are several booms to choose from. Our most popular being the 12' & 18' bi-fold models. Larger booms are available, but may not be advisable for all UTVs.

Our booms are designed for easy toolless installation in the field. Just slide the boom into the tubular square brackets and pin it in place. The hoses that feed the boom have camlock quick connect couplers to make it easy to disconnect the plumbing without the need for tools.

Boom plumbing

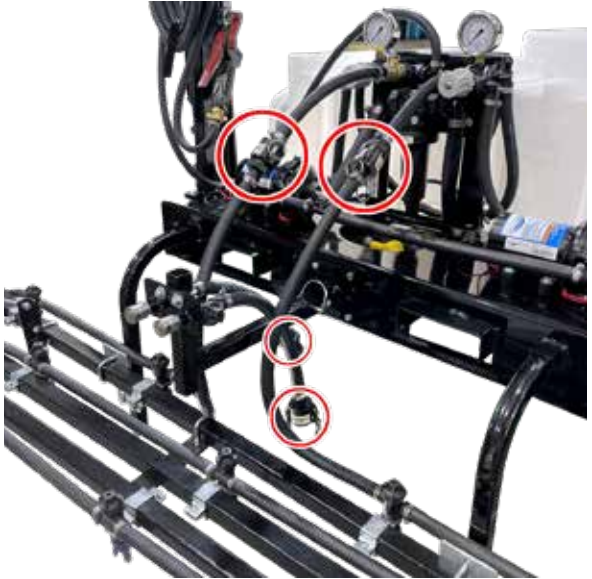
BENCO sets up each boom based on the customer's parameters. Standard setup is generally 30" spacing, but each boom is configured based on customer preference.

Spray tips are sold separately. We stock a wide variety of TeeJet, Hypro, and Wilger tips. Our most popular tip is probably the TeeJet AIC11002, a yellow air inducted tip, but our sprayers will work with any tip you want to use.

Your sprayer will be equipped with camlock quick couplers on the water supply lines. This allows you to quickly decouple the water lines to remove the boom or swap the feed lines from your boomless nozzles to your boom (if your sprayer is equipped with both boomless tips and a boom).

We can plumb your boom to either reroute both left & right supply lines to maintain left & right section control, or simply use the right line to give you a single section controlled by the right pump. Single sections give you slightly less control, but do allow you to have independent control over the wand (L) and the boom (R) on your control box, which may actually be more convenient for you. Also, we can fit seven tips on a 12' boom because we don't need to keep the numbers even.

If you are adding the boom after your sprayer was built, you may need to add the camlock fittings to the lines. This is a simple matter of cutting the lines and inserting a set of 1/2" hose barb to camlock fittings into both sides of the hose you just cut. If you need these fittings, please let us know when ordering your boom.



Storing sprayers with a boom

When it comes time to store your sprayer, just pull the out the boom, rotate it 180 degrees so the spray tips face upward, then slide the boom back into the sprayer and pin it in place. Please make sure the hoses are disconnected before you remove and rotate the boom.

Your sprayer can now be stored flat with the boom securely mounted and elevated off the ground.

Winterizing

If your sprayer will be stored anywhere where the temperature will drop below freezing, we recommend winterizing your sprayer before storing it. Draining the system may not be sufficient as the pump will not drain completely. Using compressed air to purge the system is also not recommended as it could damage the valves in the pump. **The safest way to winterize your sprayer is to run some antifreeze through it.**

We recommend using a standard glycol based antifreeze (nothing fancy). **Do NOT** use alcohol based antifreeze (like many RV & Marine products) as it may cause the rubber seals to swell, causing leaks the next year.

Winterizing your sprayer

1. Drain the system as completely as possible
2. Add some **GLYCOL based antifreeze** to the tank, mixed as directed. You don't need a lot, just enough to flush the system.
3. Run the sprayer until the water coming out is the same color as the antifreeze in the tank. Work all the valves. Don't forget the spray gun.
4. Tuck it away in the shed. You're ready for the winter.

Getting the sprayer ready in the spring

5. Drain any remaining antifreeze from the system.
6. Fill the tank at least halfway with a good quality tank cleaner & neutralizer (we like Erase). Thirty gallons should be sufficient, but use your best judgment. You can't over-clean the system.
7. Run the sprayer until empty to flush the system completely.
8. Fill with your favorite product and start spraying!

Useful Tips & Disclaimers

You may already know all of this, but these are good reminders of the best practices when operating your sprayer. We have engineered your sprayer to be as safe, reliable, and easy-to-use as possible, but this is still machinery. Always use your best judgment and be mindful that things can, and sometimes do, go wrong. Please use your sprayer as safely as possible. Always use your best judgement when operating your UTV.

- Follow the chemical manufacturer's safety handling procedures for any products used in the sprayer. Some of that stuff can get nasty.
- Make sure your UTV can handle the weight of the sprayer and all the water and chemical it can hold before you buy your sprayer. The limiting factor on tank size is usually the weight the suspension can reasonably be expected to handle. BENCO is not responsible for damage to your UTV from overloading.
- The sprayer and all the water in the tank will **greatly change the center of gravity of your UTV**. Take hills and uneven ground slowly. BENCO is not responsible for any damage that occurs to your UTV while using your sprayer. Always use your best judgement when operating your UTV.
- Don't spray people or animals with your sprayer. Bugs are okay.
- If using the hand-sprayer, it is recommended to leave the machine running to keep the battery charged.
- Be VERY careful if you are spraying when it's breezy out. **Drift is a very real concern** and you can quickly kill things you didn't plan to. (Including the neighbor's field, or worse, your wife's flowerbed.)
- Whenever possible, use the proper machinery to move your sprayer. **The fork receivers are there to be used**. These things are made with a lot of steel and are heavy. Especially with water in them.
- If you must lift the sprayer manually, don't be a hero. Drain it first and get a friend or two to help you **TEAM LIFT the sprayer**. It's heavy. All BENCO UTV sprayers weigh over 120 pounds before options & water.
- Don't let the sprayer fall on you. Serious injury or death can occur.
- Strap down each side of the sprayer using properly rated straps in a X pattern, strapping the front of the sprayer to a rear tie down and vice versa on each side. This should keep the sprayer from shifting when accelerating or traversing uneven surfaces. Gravity alone will only keep the sprayer in place until it doesn't.
- If you have to extend the power wires for your sprayer, use **12 gauge or heavier** wire and connectors. If the wires or connectors are getting hot, they aren't designed to move the amperage the pumps are drawing. Cool is good, warm may be okay, hot is a problem.
- Use your sprayer only as intended by the manufacturer. If you come up with an interesting new use, please let us know.
- BENCO does not warranty damage, only manufacturing defects which arise during normal use.
- Our pumps use **VITON** seals, which are very chemical resistant, but there are a few nasty things that will still eat it. Dicamba in particular. Choose your chemicals wisely.

- **BENCO does not warranty any damage from chemicals**. However, most major parts on the sprayer are easily serviceable, including the pumps. Give us a call and we can help you get it back up and running as affordably as possible.
- Don't forget to winterize your sprayer. BENCO does not warranty any damage from water freezing in the sprayer or any of its components.
- If your sprayer springs a leak, there are **emergency shut off valves located directly under the tank**, allowing you to service the sprayer without draining the tank.
- **If you need parts, we are here to help**. Most of the liquid handling components in your sprayer should be readily available nationwide. But, to ensure you get the right parts for your sprayer, give us a call at **605-213-1010** to have OEM parts delivered directly to your door.



**THE BENCO
1 YEAR
LIMITED
WARRANTY**

Normally, a one year warranty is nothing to brag about. The BENCO difference is that we stand behind our products long after the warranty expires. We want to know what issues our customers have so we can help them solve those problems. This feedback helps us design better and better products with more features that last even longer than those we make today.

Our warranty period is mostly limited by the warranties on the components we use to assemble your sprayer. But the support you get from BENCO will last a lifetime. Please let us know if you ever have any problems with your sprayer, no matter how long you have owned it so we can try to make it right.

Manufactured by
BENCO Products, Inc.
27093 Katie Rd. Tea, SD 57064

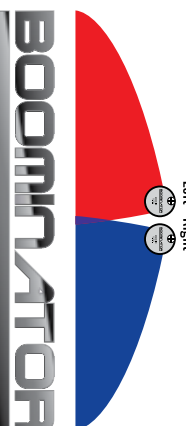


605.213.1010
www.BencoAg.com

Speed & Pressure Chart for Standard Boominator Boomless Nozzles

All Regular Pattern Spray Nozzles were tested at a height of 36 inches. (Recommended operating height is between 18 & 48 inches.) Fresh water used for all testing. These nozzles are designed for left-hand or right-hand mounting and provide a wide spray pattern with approximately 15° of kickback under the nozzle.

When using left-hand and right-hand nozzle together, adjust nozzles to allow for enough kickback overlap between the nozzles to prevent streaking in spray coverage. Nozzles can be rotated to adjust distance of spray pattern outward or amount of kick-back under the nozzle.



1160 LEFT or RIGHT 1/4" MNPT		SPEED (MPH)													
		2	3	4	5	6	7	GALLONS PER ACRE							
PSI	GPM	SPRAY PATTERN													
		20	1.0	16 ft.	15.5	10	8	6	5	4.5					
		30	1.2	16 ft.	18.5	12.5	9	7.5	6	5.5					
40	1.4	16 ft.	21.5	14.5	11	8.5	7	6							

1250 LEFT or RIGHT STANDARD TIP 1/4" MNPT		SPEED (MPH)													
		2	3	4	5	6	7	GALLONS PER ACRE							
PSI	GPM	SPRAY PATTERN													
		20	1.5	16 ft.	23	16	12	9	8	7					
		30	1.7	16 ft.	26	18	13	11	9	8					
40	2.0	16 ft.	31	21	16	12	10	9							



1400 LEFT or RIGHT 1/4" MNPT		SPEED (MPH)													
		2	3	4	5	6	7	8	9	10	11	12			
PSI	GPM	SPRAY PATTERN													
		20	1.7	17 ft.	25	17	12	10	8	7	6	5.5	5	4.5	4
		30	2.0	17 ft.	30	19	15	12	10	8	7	6.5	6	5	4.5
40	2.5	17 ft.	36	24	18	15	12	10	9	8	7	6.5	6		