

Thank You ...

for purchasing a SDI Sprayer. SDI has been manufacturing a full line of sprayers since 1982.

Each sprayer is assembled and tested prior to shipment. Sprayers are then broken down into several components for ease of shipment. Reassembly is completed by your dealer or, in some cases the end user makes the final assembly.

We take pride in our products and we make sure our sprayers work properly when they leave the factory. We make every effort to insure that reassembly in the field is done properly.

*If you have any problems with the assembly or operation of the sprayer, please call our Customer Service Department at **559-SDI-5555** between the hours of 7:00 am and 4:00 PM, Pacific time.*

Spraying Devices Inc.
P.O. Box 3107
Visalia, CA 93278
559-SDI-5555
fax: 559-SDI-5591
www.sprayingdevices.com

1938/0406sb

OPERATORS MANUAL

SDI 12-Volt Sprayers

- General Operation •
- Maintenance •
- Troubleshooting •



SPRAYER OPERATING INSTRUCTIONS

Read all instructions before spraying. When you complete these instructions put them with the Operators Manual in the information tube on the sprayer.

These instructions alert you to things you should do very carefully. If you don't you could:

- Injure yourself or Bystanders
- Injure the next person to operate the machine
- Damage the vehicle or attachments
- Damage the area you are spraying

To make sure you are fully aware of safety and service information, the following two symbols are used throughout this instruction manual.



*This symbol is a **Safety Warning** and appears next to information which may help keep you and others from being injured.*

NOTE

This symbol appears next to information or instructions which may help you setup, operate and maintain your equipment properly.

Spray with care

GENERAL INFORMATION

Spraying Devices builds a full line of sprayers. They are sold as separate components so each customer can customize their sprayer to fit their needs. The basic components are:

- Tank
- Pump
- Jet Agitation System
- Weed Wand
- Spray Boom

Tanks are gel coated color impregnated fiberglass and range in size from 30 to 80 gallons for a variety of applications.

Pumps are a 12-Volt triple diaphragm type. Diaphragm pumps are capable of pumping a range of volumes at a variety of pressures.



20-089 Flojet Pump (Model #4300-143)

Agitation: Jet agitation can be controlled in two ways, depending on the configuration of your sprayer.

Weed Wand: Controlled by the operator.

10' Spray Boom: Available, it has six single nozzles on 20" spacings with breakaway hinges.

DETERMINING SPRAY VOLUME

Determining how much spray material you will apply is the **MOST** important component of sprayer operation. Too much or too little can inadvertently damage what you are spraying.

We can help you determine how much liquid you will apply, but it is - ***YOUR RESPONSIBILITY*** - to mix the material in the tank and determine the final application rate. Contact your spray material supplier or advisor to help you determine the proper application rate.



Warning

Improper application of some chemicals can be harmful to your health and the health of others. Governmental regulations strictly govern the application rate of many chemicals.

There are five factors that govern application rate. You can control all five. They are:

- Ground Speed
- Spray Nozzle Size
- Spraying Pressure
- Ratio of Chemical Mix in Tank
- Nozzle Spacing and Height

GROUND SPEED

Your ground speed can vary greatly depending on the vehicle and operator. We recommend that you use the procedure that follows to determine the actual ground speed of your vehicle. If the vehicle has a speedometer you might mark the position of ground speeds on the face of the speedometer. You can also mark a tachometer (engine speed) in different gears to register ground speeds. Actual ground speed is extremely important.

Check your actual ground speed as follows:

1. Measure off a distance – somewhere between 100 and 200 ft. The **longer** the distance, the more accurate your speed measurement will be.
2. Drive the vehicle over the measured distance in each gear at a steady speed. Do this several times and use a stop watch to time each run. Get an accurate average of the time it takes to travel this distance in each gear. This will tell you what the available speeds are.

Use this simple formula to determine your actual speed.

Distance x 60	=	(A) _____
Time (secs) x 88	=	(B) _____
Divide A by B	=	Speed _____
Sample		
200 feet x 60	=	12000
38 secs x 88	=	3344
12000 / 3844	=	3.59 MPH

SPRAY NOZZLES

Pressure, nozzle size, and nozzle spacing work together. The following principles apply. The **bigger** the nozzle, the more liquid will be applied. The **higher** the pressure, the more liquid will be applied. The **more nozzles** on the boom, the more liquid is applied. You have control over each of these items.

Actual nozzle flow is the key to determining the application rate. Several things can affect flow rate.

- **Nozzle size and wear** – Check all spray tips along the boom and note the tip size. They should all match. As the nozzle slowly wears, the orifice size changes. This affects the flow rate. If you spray abrasive materials, nozzle wear can be accelerated. Make periodic nozzle flow rate measurements. Change nozzles that flow at higher rates than in the specifications. As a general rule, change all the spray tips at least once a year.
- **Pressure** – Flow rate and pressure are closely linked, but pressure has less effect than you might think. Four times the pressure only equals twice the flow rate. Use pressure to make *minor* adjustments to flow rate.
- **Nozzle types** – nozzle types effect flow rates and dispersion of material. Check the nozzle manufacturers catalog for the specific style you may need.
- **Flow of the Carrier** – Nozzles are calibrated using water. Some spray materials are lighter or heavier than water. This will affect flow rates at the same pressure.

The only way to accurately insure the proper application rate is to carefully monitor the flow rate at each tip. Use a calibration device and check frequently.

BEFORE YOU LOAD SPRAY MATERIALS



Warning

Some spray materials can be hazardous to people and animals. ***DO NOT*** spray if it is windy or you may be in close proximity to people or animals.

- Look at the spray material label for safety instructions and application rates
- Check the label for the use of specific PPE (Personal Protective Equipment) recommendations. As a general rule always wear:
 - ✓ **Long sleeved shirt**
 - ✓ **Long pants**
 - ✓ **Sturdy footwear**
 - ✓ **Goggles or face shield**
 - ✓ **Chemical resistant gloves, apron or suit as required**
 - ✓ **A respirator if required**
- Carry a fresh water supply
- Clean PPE with soap and water after each use
- Scrub your hands, arms and face with soap and water before eating, smoking or using the restroom.
- Always wash PPE clothing separately
- **DO NOT** wear contaminated boots or hats



Warning

Many spray materials are harmful if they contact the skin or are ingested. Wear PPE appropriate for the materials being applied. Follow all safety information and avoid inadvertent contact.

CLEAN-UP

When you have completed spraying, the sprayer should be rinsed with clean water and visually checked. Pay particular attention after applying insoluble spray materials, because those materials can leave residues that could cause clogging or misapplication.

1. Fill the tank with at least 25 gallons of clean water. Clean the fill strainer at this time.
2. Start the engine and set engine speed.
3. Open all boom valves and set pressure to at least 40 PSI.
4. Flush until tank is empty.
5. Remove suction line strainer and clean.

Remember – your sprayer will have residues of the spray materials you’ve just applied – be sure to follow regulations regarding the disposal of unused spray materials.

OPERATING TIPS

Your spray material supplier should know proper application and dilution rates. Contact them with your spray material questions. Watch for obstacles in the path of the spray booms. SDI booms are equipped with “breakaway” hinges that will pivot if they hit an obstacle. However, you can still damage other boom components.

Traveling up and down a hill may be better than across it. When tips get close to the ground, the area between the tips will get no spray coverage.

Use common sense when spraying. Casual bystanders can become upset if they become victims of your inadvertent overspray. **DO NOT** do elevated spraying (trees and bushes) when it is windy. Spray mist can drift long distances in a light wind.

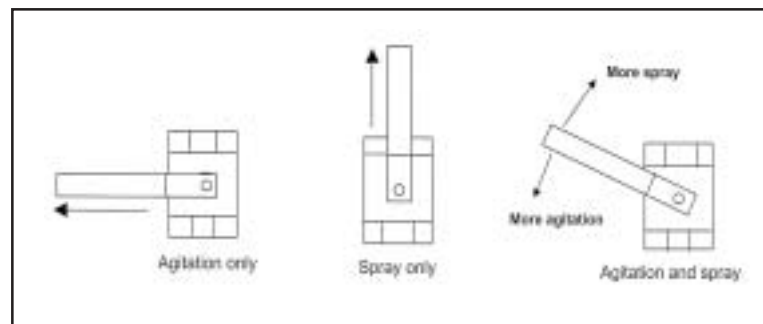
Always flush the sprayer when you are done. If you wait an extended period of time, spray residue in the tank and hose may impact your next application.

Installation and Operation

- Connect leads to battery using supplied clamps or eyelet connectors. Pump is controlled using ON/OFF switch on electrical lead.
- Add water to tank, turn pump ON to start agitation.
- Adjust agitation depending upon the configuration of your sprayer.
- Use ON/OFF switch to control sprayer.

If you have a sprayer with a 3-Way Ball Valve

- Adjust the handle on the ball valve to control the amount of agitation and/or spraying pressure. 1) Handle Horizontal = Agitation Only 2) Handle Vertical = Spray Only 3) In Between adjust to desired output



If you have a sprayer with a Pressure Regulator

- Adjust agitation with the pressure regulator. The higher the pressure, more agitation occurs in the tank. Conversely less comes out of the weed wand or boom.
- Adjust pressure to achieve desired balance between output and agitation.