REPLACEMENT PARTS ORDER INFORMATION

Description Order #	Description Order #	Description Order #
Shut-off Gasket O-ring 6-8102	Compression Spring 6-8118	Wand 6-8101
Elbow O-ring 6-8100	Hose Retaining Nut 6-8111	Hose Washer 6-8110
O-ring 6-8114	Nozzle Gasket 6-8129	Shut-off O-ring 6-8108
O-ring 6-8115	Shut-off Clamp 6-8109	Shut-off Retaining Nut 6-8112B
O-ring 6-8116	Poly Adjustable Nozzle 6-8093	Brass Nozzle 6-8122
Clear Hose 48” 6-8105	Carrying Strap 6-8137	Piston Pump Repair Kit #6-8091
Flat Spray Nozzle 6-8096	Wand Elbow 6-8099	Wand O-ring 6-8127
Piston Collar 6-8113	Shut-off assembly 6-8138	Shut-off Valve Repair Kit #6-8120B
Hose Clamp 6-8106	Shut-off Pin 6-8104	Shut-off Wand Repair Kit #6-8092B
Valve Plate 6-8117	Shut-off Filter 6-8128	
Nozzle Retaining Nut 6-8094		
Sealing Spring 6-8119		

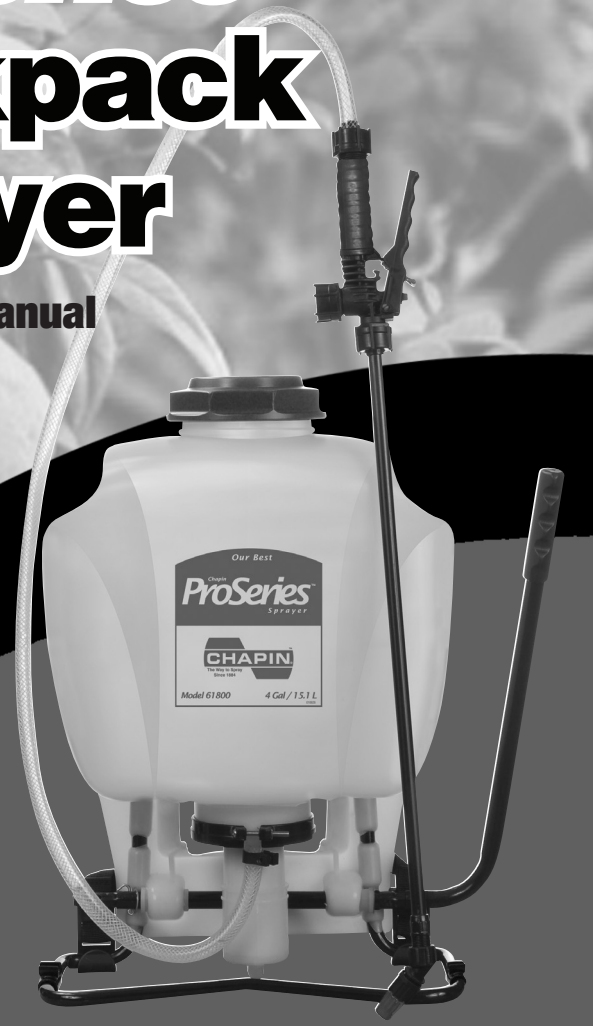
Chapin International, Inc
P. O. Box 549 700 Ellicot St. • Batavia, NY 14021-0549 U.S.A. • 1-800-950-4458 • www.chapinmfg.com

Due to our ongoing product improvement process, product specifications may change without notice. U.S. and foreign patents pending.

CHAPIN™
The Way to Spray
Since 1884

ProSeries™ Backpack Sprayer

Use and Care Manual



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Model 61800 • 4.0G/15.1L

Warning: Carefully Read These Instructions Before Use

010683

NOTE: The tank and hose may have residual water in it due to quality testing performed on the sprayer.

• Lawn & Garden • Tree & Orchard • Pesticide Use • Agriculture Use

WARNING: IMPROPER USE OR FAILURE TO FOLLOW INSTRUCTIONS CAN RESULT IN PRODUCT FAILURE OR INJURIES. FOR SAFE USE OF THIS PRODUCT YOU MUST READ AND FOLLOW ALL INSTRUCTIONS BEFORE USING.

READ ME FIRST

Your Chapin sprayer is designed to provide years of dependable use for a variety of needs. Manufactured from durable high-density polyethylene, your Chapin sprayer will operate at optimum efficiency for years to come by performing easy maintenance after each use.

RULES FOR SAFE OPERATION

Before assembling and operating your Chapin sprayer, read all instructions thoroughly. When working with equipment under pressure, safety precautions must always be carefully observed, including the following:

• NEVER SPRAY FLAMMABLE MATERIALS OR PRESSURE AND GAS PRODUCING CHEMICALS SUCH AS SODIUM HYDROXIDE.

• ALWAYS READ CHEMICAL LABEL BEFORE FILLING SPRAYER AS SOME CHEMICALS MAY BE HAZARDOUS WHEN USED WITH THIS SPRAYER.

• Do not leave a pressurized sprayer in the hot sun or anywhere near a heat source. Heat can produce pressure to build up causing sprayer to ignite or explode resulting in injury or death.

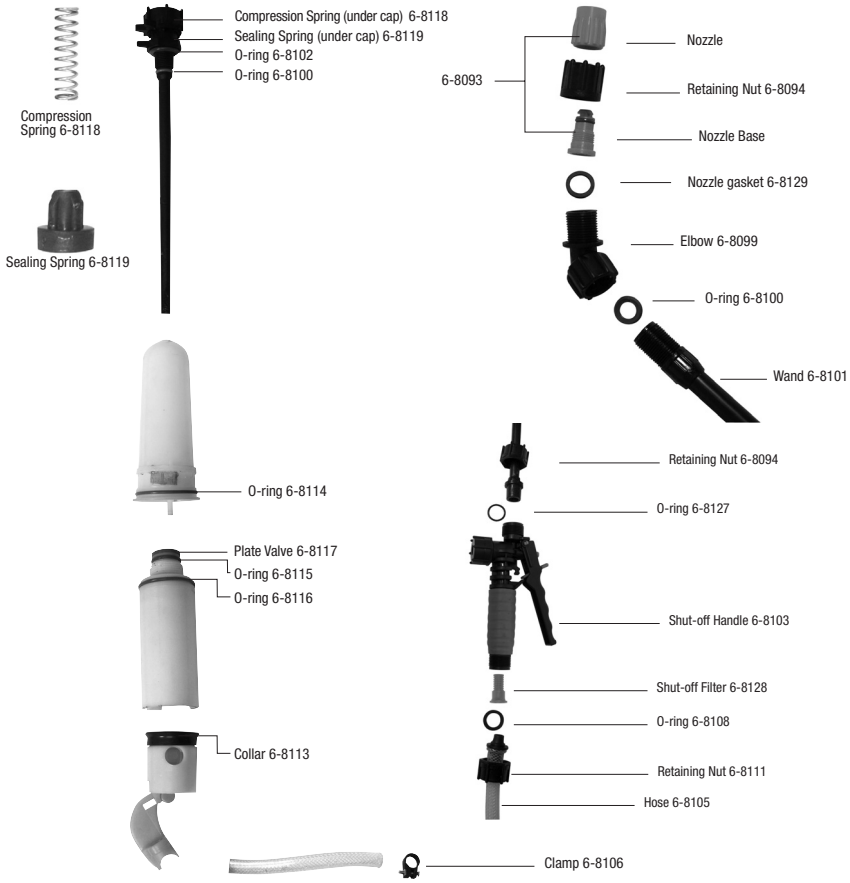
• Always wear goggles, gloves, a long-sleeve shirt, long pants, and full foot protection when spraying.

• NEVER pressurize sprayer by any means other than the original pump. Over pressurizing can cause sprayer to explode resulting in injury or death.

• Do not attempt to modify or repair this product except with original manufacturer's parts.

• PRE-USE CHECK: Check tightness of hose nut to be sure hose is securely attached to the shut-off assembly. Insure hose is securely attached to the tank by tightening hose clamp if necessary. Insure that all nozzle and wand connections are tight.

REPLACEMENT PARTS ORDER INFORMATION



DISASSEMBLING AND REPAIRING THE SHUT OFF VALVE

Figure 19

1) Assembled shut-off valve (Figure 19).

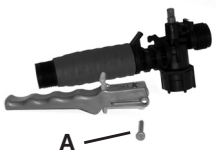


Figure 20

2) Remove the retaining pin (A) (Figure 20). Place the notched end of the retaining pin on a hard surface and push down. Remove the retaining pin when it pops up and slide the handle off the valve.

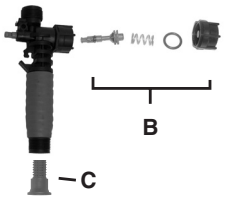


Figure 21

3) Remove the screw cap, spring, and valve body. (B) (Figure 21). Replace worn O-rings and parts. Lubricate the O-rings and reassemble by reversing the steps above. Place the handle groove in the slotted area of the valve body and make sure the locking clip is positioned correctly. Insert the retaining pin. Push down on the handle and release repeatedly to distribute the lubricant evenly. (C) Check filter in end of shut-off valve for debris. Remove filter and flush with water to clean out.

REPAIRING THE WAND / NOZZLE ASSSEMBLY

1) Chapin backpack sprayers come with a shut-off valve, wand, and elbow/nozzle assembly. If the sprayer has an adjustable plastic nozzle unscrew the nozzle cap first. Remove the nut, nozzle and nozzle O-ring, filter and filter O-ring, and elbow from the wand. Remove the O-ring from the elbow and discard. To reassemble, put the nut, nozzle and new nozzle O-ring, filter and new filter O-ring, elbow and new elbow O-ring back on in that order. Reassemble the retaining nut to the elbow. The metal screen filters with gaskets do not require an O-ring on either side.

2) Remove the wand from the shut-off valve assembly. Remove the O-ring from the wand and replace with a new O-ring and set the wand aside.

3) Reinstall the wand to the shut-off valve and reinstall the elbow to the wand.

4) Test with water before using.

APPLICATIONS & USE FOR YOUR CHAPIN SPRAYER

Avoid using a sprayer for general cleaning purposes if plant protection or herbicide chemicals have already been used in the sprayer if possible. If a sprayer has been used for plant protection or as an herbicide, clean the sprayer completely (see page 4) before using.

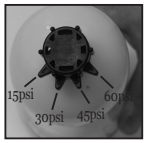
Plant Food: Use different spray patterns for optimum foliage feeding or for fungicide and pesticide application.

Herbicides: Reduce weeds and unwanted plants but avoid using the same sprayer for plant feeding or protection without thoroughly cleaning (see pg.4) the sprayer first.

General Household Use: Apply detergents, vinegar, cleaning solutions, warm water (do not exceed 120°F/49°C) or nontoxic household cleaning chemicals for carpets, floors, walls, glass, counter tops and ceilings. DO NOT use sprayer that has been used with herbicides, pesticides or other toxic chemicals for household applications.

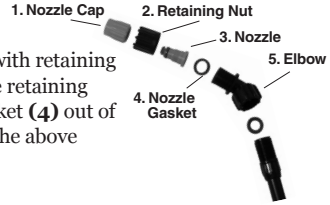
General Outdoor Use: Use the sprayer for cleaning windows or with a detergent for general purpose cleaning. Other applications include wood preservatives, waxes, water proofing, and diluted household bleach (max. 1 part household bleach to 9 parts water solution).

SPRAYER COMPONENTS & USE INFORMATION



PRESSURE REGULATOR

The spray tank and the pressure chamber are separate compartments in a Chapin Sprayer. Therefore, pressure is maintained in a separate pressure chamber within the unit and is built to with stand normal operating pressure. For additional safety an internal pressure control valve has been fitted to the cylinder (with four pressure settings that are adjustable for different needs (see diagram).

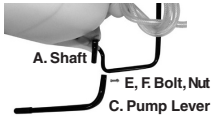


REMOVING THE ADJUSTABLE NOZZLE

Unscrew the nozzle cap **(1)** from the nozzle body **(3)** with retaining nut **(2)** fastened tightly to the elbow **(5)**. Unscrew the retaining nut **(2)**. Push the nozzle body **(3)** with the nozzle gasket **(4)** out of the retaining nut **(2)**. To reinstall the nozzle, reverse the above instructions.

ASSEMBLY INSTRUCTIONS FOR WAND

1. Make sure the o-ring is installed on the end of the wand. Insert the wand into shut-off valve.
2. Turn and tighten the screw cap clock-wise onto the shut-off valve.

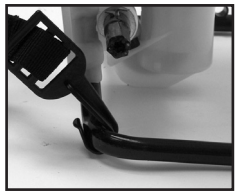


INSTALLING THE PUMP LEVER

The sprayer includes all hardware necessary for installing the pump lever. The pump lever can be mounted on either end of the shaft. To install the pump lever place the lever handle (C) onto the shaft (A). Align the bolt hole and install the bolt (E) and nut (F) and tighten.

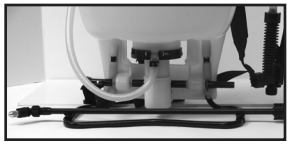
INSTALLING THE SHOULDER STRAP

The top of the shoulder straps are attached to the tank. Attach the lower end of the straps by fastening the strap hooks to the metal frame between where the frame exits the tank and curves around.



WAND CLIP

The wand can be attached to the metal frame using the wand clips.



SPRAYER COMPONENTS & USE INFORMATION, Continued

REGULATING THE PRESSURE

The Chapin backpack sprayer has a built-in, adjustable regulator to control spray pressure. You should adjust the regulator before filling the sprayer tank. To adjust, first remove the tank cap and filter basket. Look into the tank to view the top of the regulator. There are four "fingers" on the regulator's knob. The fingers are numbered 1, 2, 3, and 4. The finger to the extreme left is #1 and to the extreme right is #4. Finger 1=15 psi, Finger 2=30 psi, Finger 3=45 psi, and Finger 4=60 psi. The higher you set the pressure, the more liquid will exit the sprayer in a given amount of time. Note: the higher the pressure is set, the smaller the droplets. Therefore, there will be more "drift" in the expelled liquid at higher pressures. When changing the spray pressure, excess pressure in the pressure cylinder must be released into the tank through the spray wand. To adjust, push down the regulator knob and rotate to align with the alignment pin to the desired number.

FILLING THE SPRAYER

Always mix the chemicals with the proper volume of water in a SEPARATE container. Make sure the filter basket is in place to keep debris from entering sprayer. Pour the mixture into the tank opening.

Note: In order to fill the sprayer to the 4-gallon capacity you must set the pressure control valve to the 3 or 4 setting (See "Regulating the Pressure.") and only add 2 or 3 gallons of your chemicals. Prime the pump by pumping the sprayer handle. The volume of liquid will appear to decrease in the chemical mix tank as the pressure cylinder fills. Liquid will exit through the top of the pressure regulator when the cylinder is completely full. Then, fill the remaining liquid chemicals into the tank.

It is not necessary to fill the sprayer tank with each use. You can fill the tank with only the amount needed for each application.

Always follow the manufacturer's instructions included on their product label.

HELPFUL SPRAYING INFORMATION

Use RAPID pump strokes to prime the pump. You will know the pressure chamber is filling with liquid when you feel firm resistance from the pump. The air in the pressure chamber is slowly compressed from repeated piston strokes. By pressing the hand lever, the valve opens. The hand lever valve has a retaining clip to keep the valve in the "OPEN" position for continuous spraying, if desired. For easy pump action use the END of the pump handle. The amount of liquid delivered during spraying depends on the pressure set in the pump (see above: Regulating the Pressure).

Note: If you experience a rapid drop in pressure, drain the sprayer completely and pump the handle with an empty tank. The air chamber will fill with the required volume of air to repressurize. Chapin advises performing this procedure from time to time as routine maintenance.

POWDER-BASED CHEMICALS

Powder-based chemicals (powder mixed with liquids to make the spraying agent) are usually abrasive and will cause wear to the collar, piston pump and cylinder of the sprayer. When you use a powder-based chemical in your sprayer, make sure it is thoroughly dissolved in the liquid solution. Directly after use you must remove the piston, clean and lubricate the collar with petroleum jelly. Thoroughly clean and flush the sprayer components to extend the life of the sprayers parts.

DISASSEMBLING AND REPAIRING THE PRESSURE CYLINDER

Only remove the pressure cylinder if the screen is clogged or the sprayer is leaking from where the pressure cylinder and tank meet.

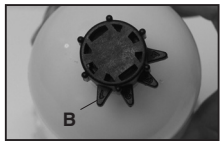


Figure 13

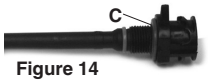


Figure 14

1) Loosen the screw on the black clamp around the pressure cylinder and remove the clamp. Put the tank on the floor or ground and remove the control knob (B) (Figure 13) from the top of the pressure cylinder by pushing the control knob down and rotating it counter-clockwise and lifting it off. Unscrew the valve body and set aside (Figure 14). Hold on to the neck of the tank with one hand and grasp the pressure cylinder with your other hand. Move the pressure cylinder back and forth and push down on it using all of your body weight to free the cylinder from the tank. If that does not work, use a 12 - 18 inch piece of 2 x 4 lumber and a heavy hammer. Cover the top of the pressure cylinder with a piece of cloth and lay the 2 x 4 over it. With a several blows from the hammer the cylinder should pop out of the tank.

2) When the pump cylinder is removed you can replace the large O-ring (A) (Figure 15). DO NOT stretch the O-ring over the flange at the bottom. Slide the O-ring onto the pres-sure cylinder from the top to the recess.

3) Remove the other O-ring (C) on the valve body and replace as well. Apply some grease to the O-ring and threads and reassemble (Figure 14).

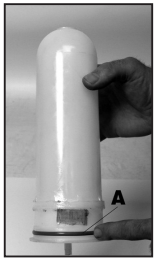


Figure 15

Figure 16

4) Pull apart the spring and sealing piece on the control knob to remove. Push the new ones together (Figure 16)

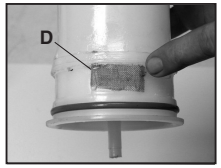


Figure 17

5) If the pump handle snaps to the down position when you lift it up, this means that the inlet screen (D) is clogged. It should be cleaned with a small hard bristle brush and detergent before reassembling (Figure 17).

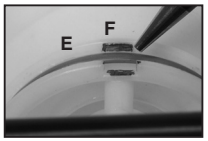


Figure 18

6) Replace the pressure cylinder by placing the tank upside down on the floor and applying grease to the lip of the pressure cylinder and O-ring (Figure 18) (E). Place the pressure cylinder into the tank making sure to line up the tab on the tank with the notch (F) in the pressure cylinder. Push down forcefully and rock the cylinder back and forth. If necessary, use a 12 - 18 inch piece of 2 x 4 lumber to apply downward force on the pres-sure cylinder. Be sure to use a rag or piece of cloth between the sprayer and the 2 x 4 to protect the pressure cylinder.

DISASSEMBLING AND REPAIRING THE PISTON PUMP

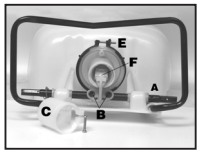


Figure 1

1) Remove the handle and bolt and set aside. With the pump facing towards you lay the unit on its back (Figure 1). Loosen the hose clamp by unscrewing the bolt and remove the sprayer hose. Caution:

There could be residual liquid in the hose and pressure cylinder. Remove the nut and bolt from the protective cap and remove the cap (C). Rotate the pump shaft in order to reach two lever bolts in the center (B). Using a wrench, remove the lever bolts. Pull the piston (F) out of the piston cylinder.

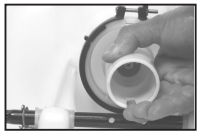


Figure 2

2) Remove the piston cylinder assembly by turning the piston cylinder counter-clockwise when viewing the sprayer from the bottom. Caution: The piston cylinder has sharp edges.

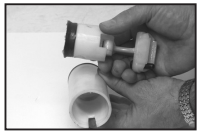


Figure 3

3) Check for vertical scratches on the inside of the piston cylinder and the piston. If one or both are scratched you must replace them.

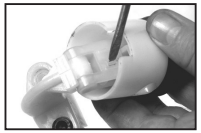


Figure 4

4) Remove the connecting rods from the piston and lever by inserting a flat head screwdriver between the two connecting rods and rotating.

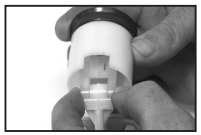


Figure 5

5) Insert the new piston and replace the lever studs on the inside of the new piston. Place the lever studs into the connecting rods and snap together.

Wear protective gloves when performing this operation.

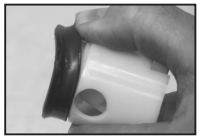


Figure 6

6) To replace the collar, push it off of the crown of the piston with your thumb. You will see form fitted slots to install the new collar on to the piston crown.

Figure 7

7) Remove the valve plate and O-rings from the outside of the piston cylinder. Making sure the O-rings are set properly in the exposed grooves, install the new valve plate and the two O-rings. There is a second valve plate inside the piston cylinder. Pull on the red or orange pin and remove the valve plate using a #2 Phillipshead screw driver. Install a new valve plate and reseat the retaining pin firmly in place using the #2 Phillipshead screw driver.

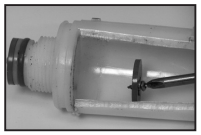


Figure 8

8) Assemble the piston cylinder. Grease the O-ring on the pistoncylinder (do not get any grease on the valve plate) and place the piston cylinder into the pressure cylinder. Screw the piston cylinder clockwise until tight and the bottom O-ring is no longer visible. When properly placed, the notch on the piston cylinder will line up with the catch on the pressure cylinder.

Figure 9

9) Apply a little grease to the inside of the piston cylinder wall on the collar, and reinstall the piston into the piston cylinder.

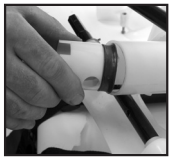


Figure 10

10) Insert the piston at an angle with the leading edge of the collar placed over the slot in the piston cylinder. Install the 6mm Allen bolts through the lever base and into the shaft.

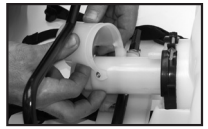


Figure 11

11) Replace the cap. Tighten the nut and bolt. Reinstall the handle. Replace the hose and firmly secure the hose clamp back in place.

SPRAYER COMPONENTS & USE INFORMATION, Continued

CLEANING

1 Always empty the sprayer and clean the tank thoroughly after each use.
2) Pump the sprayer handle until all of the contents and air exit through the nozzle.
3) Fill tank half way with water and pump the water out as explained in step 2 (repeat several times with highly corrosive materials).

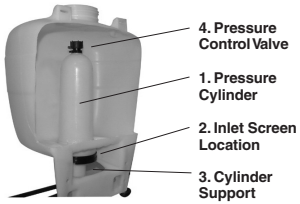
Other Cleaning Hints:

- Improper spray distribution usually means the nozzle is clogged, remove the nozzle and clean it.
- Soap can be added to the water to clean the tank.
- Do not use strong cleaning agents or abrasives.
- If you use a chemical agent to clean the tank follow the manufacturer's recommendations for the disposal of the waste water.
- In case of a chemical agent spill activated liquid charcoal (or other form) can be used to absorb chemicals in the sprayer tank or spills.

Note: If you are using with hormone weed killers, follow the manufacturers instructions for the clean up of the herbicide producers, and neutralize with activated charcoal. This is important if other chemicals are used subsequently since the residue of the herbicide will damage plants. You can add 0.35 oz./1 g. of activated charcoal to 1.7 pint/1 liter of water and leave in the tank and the hose lines for about 24 hours. For cleaning after the application of carbolineum products, especially if they are not water soluble, use a 5% soda lye with a temperature of 104°F/40°C and rinse with a lot of water.

STORING / MAINTAINING YOUR SPRAYER

A fine mesh stainless steel screen is on the pressure cylinder inlet to protect the piston, cylinder and collar. If your sprayer will not empty the tank, check for a clogged inlet screen (2). The inlet screen is located at the bottom of the pressure cylinder on the back of the sprayer (the side against your back when in use).



When you let go of the pump handle and it "snaps" to the down position, it is an indication that the screen needs cleaning. Clean the screen with a small bristle brush or an old toothbrush. See diagram to locate the screen.

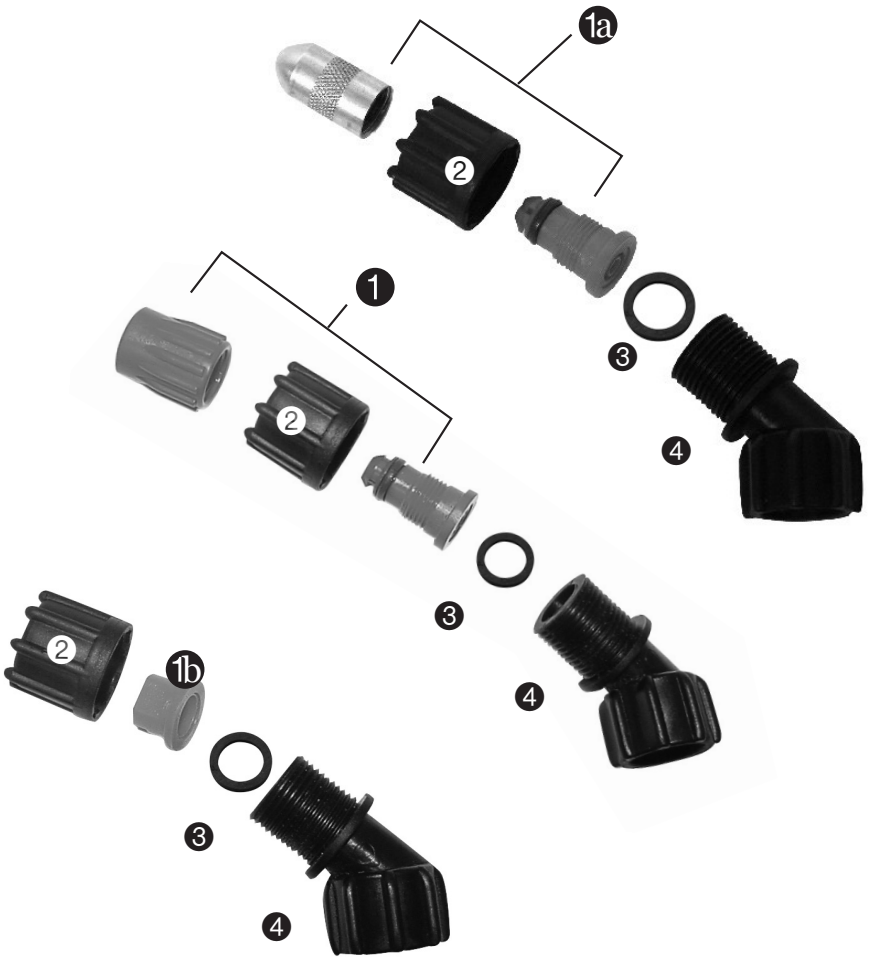
- The sprayer should be stored out of direct sunlight in a cool dry space.
- Treat both the collar and the piston with petroleum jelly after removing the pump or mounting a new collar.
- Before freezing weather make sure to drain all liquid in the tank, lines and air chamber to avoid liquid expansion and cracking in the sprayer components (See "Cleaning.") and lock the shut-off valve in the "open" position.
- When service is required call your nearest Chapin dealer and always insist on original Chapin manufactured replacement parts.
- Inspect the hose, wand, pump, tank and shut-off valve for wear, damage or leaks on a regular basis and repair defects promptly.

Avoid excessive wear by:

1) Regular lubrication of the collar, cylinder and piston with petroleum jelly.
2) Thorough cleaning and flushing of sprayer with soap and water after each use.

NOZZLE ASSEMBLY

Spray Tip Assembly	Part #
1. Poly Adjustable Nozzle	6-8093
1a. Brass adjuatable Nozzle	6-8122
1b. Flat Fan Nozzle	6-8096
2. Nozzle Retaining Nut	6-8094
3. Nozzle Gasket	6-8129
4. Elbow	6-8099



TROUBLE SHOOTING YOUR SPRAYER

Symptom	Possible Reason	Correction
Difficulty pumping the pump lever	Dirty bushing	Remove the pump lever, clean & grease the bushings with petroleum jelly
	Dirty cylinder wall	Remove the piston, clean & replace the piston & collar
	Swollen collar from long term exposure, needs lubrication	Lubricate the collar with petroleum jelly
Little or no resistance during repeated pumping – no pressure	Damaged or dirty valve plate	Clean or Replace Valve Plates or Cylinder
	Damaged O-ring at valve seat	Replace O-ring
	Collar or piston is worn	Replace Collar or Piston
	Leaky seal in pressure regulator	Check Seal and Valve Seat
Too much resistance after just a few pumping strokes but pressure only lasts briefly	Not enough air cushion in the pressure cylinder	Remove the PVC hose & drain pressure cylinder. Reconnect the hose & preventive measure-release. Pump up after each use
Upward pumping is more difficult and/or tank wall becomes indented.	Wrong tank cap (no vent hole)	Replace with a properly vented cap
	Vent hole is clogged	Clear the vent hole
	Lower valve plate sticks	Replace the valve plate
	Clogged intake channels	Clean the channels & tank
When the handle is pulled up it moves itself back down	Inlet screen clogged (at base of pressure cylinder)	Clean intake screen with a small brush and detergent
Leaks Inside Cylinder	Damaged/Dirty Collar or Piston	Clean or Replace Collar and Possibly
Leaks Outside Cylinder	Damaged O-ring on Cylinder	Cylinder if Worn, Replace O-ring
The end of the spray wand leaks	Worn or damaged shut-off valve	Rebuild or replace the shut-off valve

Note: ALWAYS WEAR STURDY RUBBER GLOVES, PROTECTIVE EYE WEAR AND PROTECTIVE CLOTHING WHEN USING THE SPRAYER and work in a ventilated area or outdoors. Prior to any repair, clean the sprayer tank with water by filling it and spraying the water in an appropriate area outdoors or in a container. Make sure all of the pressure is released by locking open the shut-off valve. When you complete the repair fill the sprayer tank with water and pressurize it to check for leaks. DO NOT USE THE SPRAYER IF IT LEAKS. Repair the leak and check the sprayer again.