Rapid Spray

15L RAPIDMIX BACKPACK SPRAYER

OPERATORS HANDBOOK

SMKCM0015L

RAPIDMIX
safe spray technology

DISCLAIMER: Rapid Spray makes no guarantee regarding the accuracy of the chemical mixing system. Always confirm correct mixing ratio before application.

⚠ WARNING ⚠

WARNING: Improper use or failure to follow instructions can result in explosive failure causing serious eye or other injury.

For safe use of this product you must read and follow all instructions. Do not leave a pressurized sprayer in the hot sun. Heat can cause pressure build-up resulting in possible explosion. Do not store or leave solution in tank after use. Always wear goggles, gloves, long sleeve shirt, long pants and full foot protection when spraying. Never use any tool to remove pump if there is pressure in the pressure chamber. Never pressurize sprayer by any means other than the original pump. Do not attempt to modify this sprayer. Replace parts only with manufacturer's original parts. Never spray flammable, caustic, acidic, chlorine, bleach or other corrosive solutions or heat, pressure, or gas producing chemicals. Always read and follow chemical manufacturer's instructions before use with this sprayer as some chemicals may be hazardous when used with this sprayer.

⚠ CAUTION ⚠

- **PRE-USE CHECK:** Before each use check tightness of hose nut to be sure hose is securely attached to the shut-off assembly. Ensure hose is securely attached to the tank by tightening hose clamp if necessary. Ensure that all nozzle and wand connections are tight. Ensure the large pump clamp is tight. Ensure the 2 bolts used to attach the pump lever to the pump shaft are tight.

- Do Not exceed a tank solution temperature of 49º C /120º F.

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

APPLICATION & USE FOR YOUR SPRAYER

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

General Household Use: Apply detergents, 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.

SPRAYER COMPONENTS & USEFUL INFORMATION

NOZZLE ASSEMBLY

Figure 1 - 2:

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, reverser the above instructions.

Figure 3:

Unscrew the retaining nut from the elbow and push the fan nozzle tip and gasket out of the retaining nut. To reinstall the nozzle, reverse the above instructions.

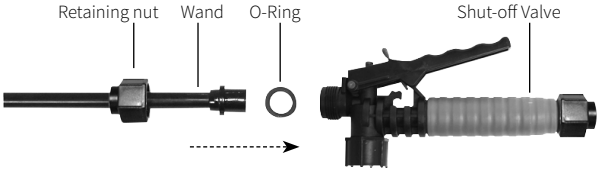
Figure 1.

Figure 2.

Figure 3.

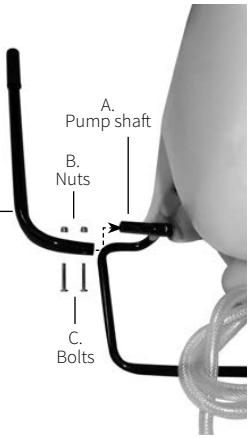
WAND ASSEMBLY

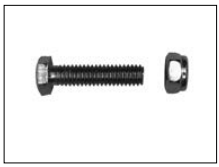
1. Make sure the o-ring is installed on the end of the wand. Insert the wand into shut-off valve.
2. Turn and tighten the retaining nut clock-wise onto the shut-off valve.



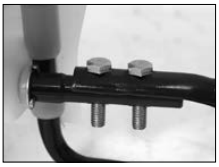
INSTALLING THE PUMP HANDLE

The pump handle can be mounted on either side of the pump shaft (A). To install the pump handle place the handle (C) over the shaft (A) aligning the pump handle holes and shaft holes. Slide the bolts (B) through the aligned holes as shown in figure 3. Tighten nuts (D) to bolts. There are holes in the pump handle to allow for either left (fig.2-4) or right (fig.5) hand mounting.










INSTALLING THE SHOULDER STRAP

The backpack strap is provided with multiple features including shoulder strap, chest strap, waist belt and lumbar support. (fig. 1). The top the shoulder strap is attached to the top of the tank and is removable (fig. 2). The hook from the lumbar support attaches to the base tube on the bottom of the tank. Position lower strap clip hook as shown, under base rail on a solid and stable surface. Push down on sprayer to snap clip onto rail (fig. 3).

Figure 1.
Strap assembly

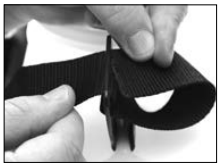
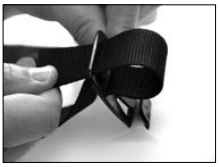
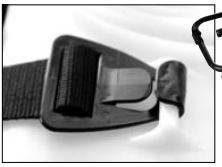
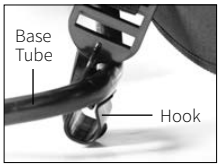




Figure 2.
Shoulder strap to top of tank



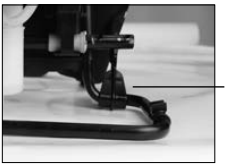
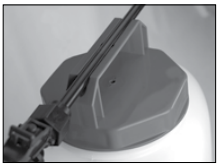



Figure 3.
Hook attachment

WAND HOLDER

The wand easily snaps into cap handle or can be attached to the pump handle using the wand clip.



Handle Snap

Wand Clip

3-STAGE FILTER SYSTEM

This backpack sprayer is equipped with a 3 stage filtering system (see fig. 1). Stage 1 is a filter basket incorporated into the tank opening where fluid is added. Stage 2 filter is located at the inlet of the pressure cylinder. Stage 2 is a removable In-Tank filter. Stage 3 is a removable filter incorporated into the shut-off assembly. Periodic cleaning of these filters is recommended to insure consistent fluid flow through the sprayer. This will also reduce sprayer component wear.

The stage 3 filter is a removable filter incorporated into the inlet side of the shut-off valve (see section "disassembling and repairing the shut-off valve"). Make sure pressure is released before detaching the hose from the shut-off.
It is best to have no or minimal fluid in the pressure cylinder before removing and reinstalling the stage 3 shut-off filter as fluid can leak from the hose.

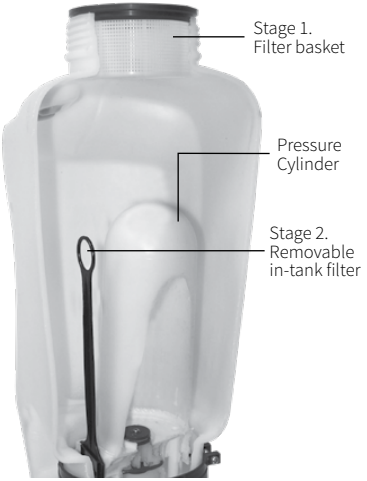
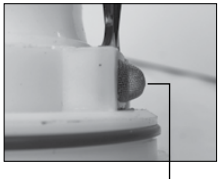


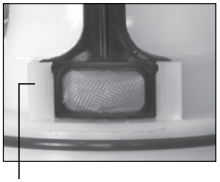
Figure 1.

Stage 2.

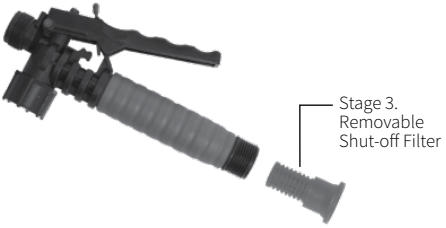
Removable In-Tank Filter



Guide edge facing away from pressure cylinder.



Guide edge on pressure cylinder.



FILLING SPRAYER TANK

Make sure the filter basket is in place to keep debris from entering the tank. Fill sprayer tank with water.

FILLING CHEMICAL TANK

Push chemical tank (fig. 1.), then pull out (fig. 2.).

Place chemical tank on a flat surface and fill with desired amount of chemical.

Always follow the chemical manufacturer's instructions. Snap chemical tank back onto the sprayer.

Figure 1.

Figure 2.

BASIC USE OF RAPIDMIX SETTING ADJUSTMENT

Set sprayer knob adjustment to desired amount of concentrate sprayed per litre. Fill Chemical tank with exact amount of chemical to cover the square metres per chemical manufacturer's instructions. Example: 30ml for 1 square metre. Evenly spray and cover the desired 1 square metre area until concentrate tank is empty.

NOTE: Setting 1 will mix less chemical with water - setting 7 will allow more concentrate to be mixed with water when spraying. The water is the vehicle in which the chemical is being delivered. As long as you cover the desired predetermined area with the appropriate amount of chemical the amount of water is inconsequential. Setting the mix ratio helps you control how quickly the chemical is delivered per litre.

FINE TUNING YOUR RAPIDMIX SPRAYER

(Use this process for calibrating your mix ratio settings)

1. Fill the concentrate / chemical tank and backpack tank - both with water.
2. Weigh the concentrate / chemical tank and record the weight.
3. Set the dial to the desired position (e.g. set to 1 for 4ml per litre).
4. Weigh your empty bucket (record the weight for future reference if your scale doesn't have a tare function).
5. Keeping the bucket on the scale, spray 1 litre of water (adding an additional 1kg to the empty weight of your bucket).
6. As you spray, keep your pump strokes consistent for most accurate measurement.
7. Remove the concentrate / chemical tank from the backpack sprayer and weight the tank with it's remaining chemical in the tank.
8. Subtract the current weight of concentrate / chemical from the weight recorded in step 2.
9. Calculate the mix ratio using the following equation:

$$\text{Mix Ratio} = \frac{127.9356}{\left(\frac{\text{TOTAL WT OF WATER}}{\text{CHANGE IN WT OF CONCENTRATE TANK}}\right)} - 1$$

10. If results are slightly off from the expected mix ration, set knob - \ + to accommodate variance and retest to confirm accuracy.
11. Repeat as needed for a range of settings

NOTE:

- Always follow chemical manufacturer's instructions.
- When not spraying, set mix ratio dial to zero.
- Approximate mix rations based on chemical concentrates with approximate viscosity to water while pumping at a rate of 60 beats per minute.
- Pumping faster than 60BPM will result in higher mix ratios and pumping slower will result in lower mix ratios.

SETTING	Millilitre per Litre
1	4ml / L
2	15ml / L
3	26ml / L
4	38ml / L
5	45ml / L
6	53ml / L
7	60ml / L
8	64ml / L
9	68ml / L
10	71ml / L

BASIC USE OF RAPIDMIX SETTING ADJUSTMENT

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 compressed from repeated strokes. By pressing the hand lever on the shut-off, the valve opens. For safety lock-off feature (no-spraying), pull up on handle and move red locking mechanism into lock-off position as shown in fig. 1. To disengage, pull up on handle and return red locking mechanism to neutral position as in fig. 3. For lock-on feature (continuous spraying), push down on handle and move red locking mechanism into lock-on position as shown in fig. 2. To disengage, push down on handle and return red locking mechanism to neutral position as shown in fig. 3.

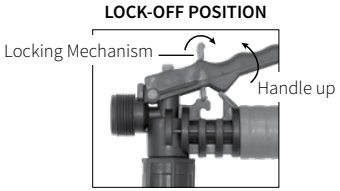


Figure 1.

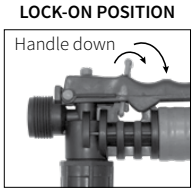


Figure 2.

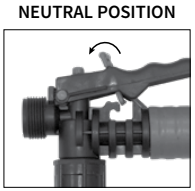


Figure 3.

For easy pump action use the END of the pump handle. The amount of liquid delivered during spraying depends on the rate of pump stroke. The fan nozzle tip is rated at 1.5L/min at 40psi. This is the nominal operating pressure of the sprayer.

NOTE: If you experience a rapid drop in pressure, drain the sprayer completely and pump the handle with an empty tank. The pressure chamber will fill with the required volume of air to re-pressurize. Perform this procedure from time to time as routine maintenance.

CLEANING

1. Always empty the sprayer and clean the tank thoroughly after each use.
2. Pump the sprayer handle until all the contents and air exit through the nozzle (minimum of 30 strokes).
3. Fill the tank half way with water and pump the water out as explained in step 2. (repeat several times as necessary).

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.
- Follow the chemical manufacturer's instructions for clean up.

STORING / MAINTAINING YOUR SPRAYER

- The sprayer should be stored out of direct sunlight in a cool dry space.
- Set the dial to zero when not in use.
- Before freezing weather, make sure to drain all liquid in the tank, pump, pressure cylinder, hose, shut-off valve, wand and nozzle to avoid liquid expansion and cracking in the sprayer components. (See “CLEANING” section.) Lock the shut-off valve in the “open” position.
- When service is required, call your nearest local dealer and always insist on original 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.

TROUBLE SHOOTING YOUR SPRAYER

SYMPTOM	POSSIBLE REASON	CORRECTION
Difficulty actuating the pump lever and / or pump handle moves itself back up.	1. Upper valve plate sticks 2. Piston cylinder outlet passage clogged	1. Clean or replace valve plate 2. Clean piston cylinder outlet passage
Little or no resistance during repeated pumping - no pressure.	1. Damaged/worn/dirty upper and lower valve plate 2. Damaged/worn upper o-ring on piston 3. Piston collar or piston assembly is worn	1. Clean or replace valve plate 2. Replace o-ring 3. Replace collar or piston cylinder assembly
Too much resistance after just a few pumping strokes but pressure only lasts briefly.	1. Not enough air cushion in the pressure chamber 2. Upper valve plate damaged/ worn/dirty	1. Release pressure in pressure chamber. Remove the hose & drain pressure. Reconnect the hose. 2. Clean or replace upper valve plate
Upward pumping action is more difficult and/or pump handle moves itself back down.	1. Vent hole is clogged 2. Lower valve plate sticks 3. Clogged filter 4. Piston cylinder intake clogged	1. Clear the vent hole in cap 2. Clean or replace the valve plate 3. Clean in tank filter 4. Clean piston cylinder intake
When the handle is pulled up it move itself back down.	1. Valve plate sticking	1. Clean or replace valve plate
Leaks at Piston Cylinder	2. Damaged/worn/dirty collar 3. Damaged piston cylinder 4. Damaged piston	1. Clean or replace piston collar 2. Replace piston cylinder 3. Replace piston
Shut-off leaks	1. Connections loose 2. Worn or damaged shut-off	1. Tighten connection 2. Rebuild or replace the shut-off valve
Wand assembly leaks	1. Connections loose 2. Damaged or worn o-ring/gasket	1. Tighten connection 2. Replace o-ring/gasket
Leak between pump assembly and tank	1. Pump clamp loose 2. O-ring worn or damaged	1. Tighten clamp 2. Replace pressure chamber o-rings
Hose leaking at tank outlet	1. Hose clamp loose	2. Tighten clamp
Hose leaking at shut-off	1. Connection loose 2. Damaged or worn o-ring/gasket	1. Tighten retaining nut 2. Replace o-ring/gasket
Chemical tank doesn’t stay in place	1. Bracket spring is not tight	2. Tighten spring tension bolt

DISASSEMBLING AND REPAIRING THE PISTON PUMP

Figure 1.

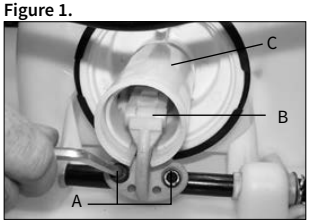


Figure 2.

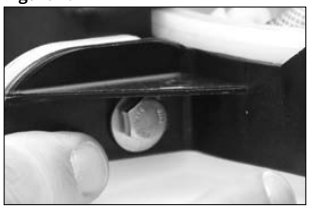


Figure 3.

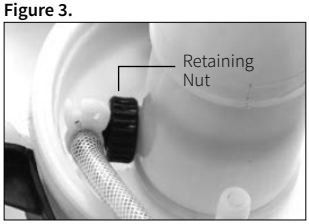


Figure 4.

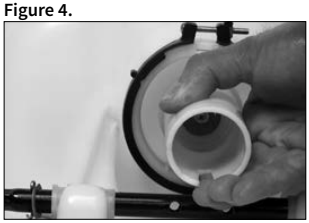


Figure 5.

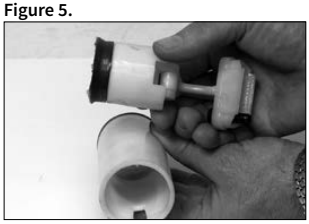
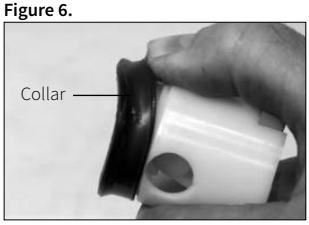


Figure 6.



1. Depending on your model, remove the cotter pin or bolts that hold the pump handle to the pump shaft.

2. With the pump facing towards you, lay the sprayer on it's back (fig. 1). Loosen the hose clamp 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 using an allen wrench. Once the bolt has been removed, remove the cover. Rotate the pump shaft in order to reach the lever bolts (A) that connect the piston assembly (B) to the pump shaft. Using an allen wrench, remove the lever bolts. Pull the piston out of the piston cylinder (C).

3. Remove the two bolts that hold the frame assembly to the sprayer tank (fig.2). Use a socket wrench on both the bolt and nut to loosen. Once the bolts are removed, the frame assembly should separate from teh tank.

4. With a pair of pliers, reach into the pump cylinder to loosen the black plastic retaining nut (fig. 3) to detach the hose.

5. Remove the piston cylinder assembly by twisting the cylinder counter clockwise (fig. 4). This may require a strap wrench or large pair of pliers. Careful not the damage the cylinder using pliers.

6. Check both the piston and the inside of the piston cylinder for vertical stretches If scratched, replace the piston.

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

Figure 7.

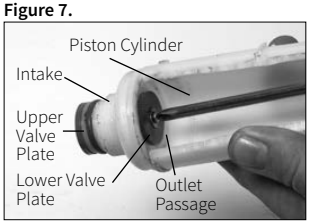


Figure 8.

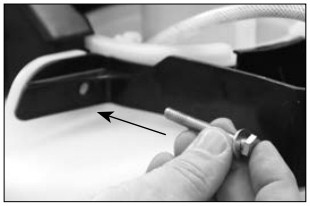


Figure 9.

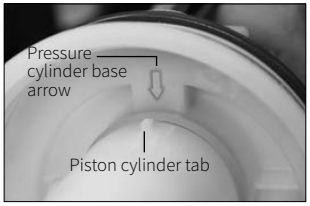


Figure 10.

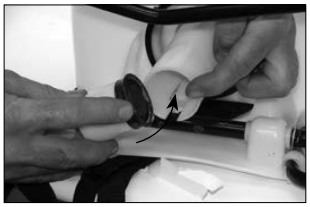
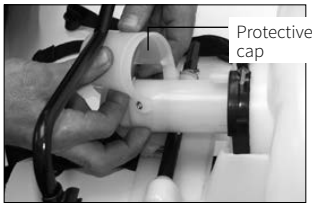


Figure 11.

Figure 12.



8. There are two valve plates on the piston cylinder, one on the inside of the cylinder and another on the outside top. The valve plates are held in place with a screw and washer and can be removed and replaced using a Phillips head screw driver. The two o-rings can be removed and replaced as well. Insure that the o-rings are positioned in the o-ring grooves in the piston cylinder (fig. 7).

9. Reassemble frame assembly to the sprayer tank. Use a socket wrench on both the bolt and nut to tighten (fig. 8).

10. Reassemble the black plastic retaining nut to the piston cylinder (fig. 3).

11. Grease the two o-rings on the piston cylinder (do not get any grease on the valve plate) and screw the piston assembly into the pressure cylinder base. Screw the piston cylinder clockwise until tight and the bottom o-ring is no longer visible. When properly placed, the tab on the piston cylinder will line up with the arrow on the pressure cylinder base (fig. 9).

12. Apply Petroleum Jelly to the inside of the piston cylinder wall and on the collar, and reinstall the piston assembly into the piston cylinder (fig. 10).

13. Insert the piston at an angle with the leading edge of the collar placed over the slot in the piston cylinder (fig. 11). Bolt the piston assembly to the pump shaft using the lever bolts (fig. 11).

14. Replace the protective dust cap (fig. 12). Tighten the nut and bolt. Reinstall the pump handle (see Install Pump Handle). Replace the hose and firmly secure the hose clamp in place.

DISASSEMBLING AND REPAIRING THE PISTON PUMP

1. Release the pressure from the sprayer and remove all liquid from both the pressure chamber and the tank.
2. Loose hose clamp and remove hose.
3. Remove the two bolts attaching the pivot lever to the pump shaft and remove piston assembly (fig. 2a & 2b).
4. Remove large clamp holding the pressure chamber and tank together (fig. 1).
5. Rock the pressure chamber back and forth and push down to free it from the tank (fig. 1).
6. Once freed, the entire pump assembly can be removed by maneuvering it through the base frame (fig. 3a & 3b).
7. The pressure chamber o-ring can also be replaced. DO NOT stretch the o-ring over the bottom flange. Assemble the o-ring over the top of the chamber. Apply petroleum jelly to the o-ring before reinstalling pump assembly into the tank (fig. 3b).
8. Reassemble by attaching component in reverse order.

NOTE: When attaching frame assembly, align tank groove and pump groove (fig. 4). Lock in place with frame tab (fig. 5) to secure all three components. Secure frame assembly with two bolts (fig. 6).

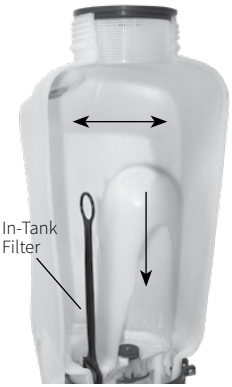


Figure 1.

Figure 2a.

Figure 2b.

Figure 3a.

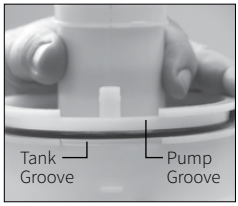


Figure 4.

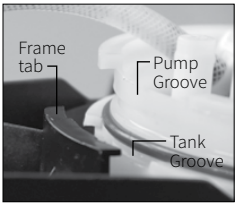


Figure 5.

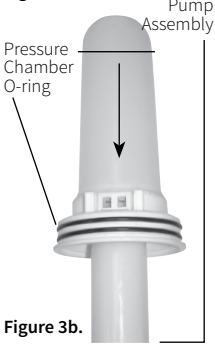


Figure 3b.

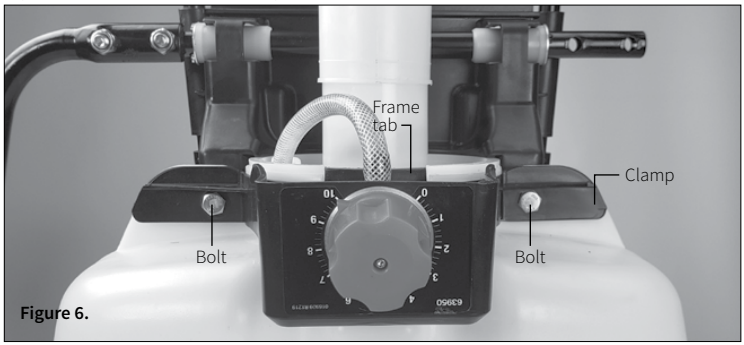


Figure 6.

DISASSEMBLING AND REPAIRING THE SHUT-OFF VALVE

Figure 1.

1. Assembled shut-off valve (fig. 1).

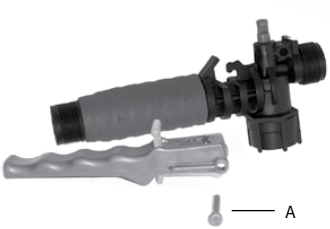


Figure 2.

2. Remove the retaining pin (A)(fig. 2), place the notched end of the retaining pin on a hard surface and push down. Remove the retaining pin and slide the handle off the valve.

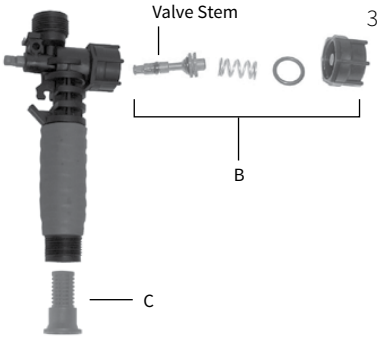


Figure 3.

3. Remove the retaining nut (o-ring attached), spring and valve stem (B) (fig. 3). Replace the worn parts. Lubricate the o-rings and reassemble by reversing the steps above. Place the handle groove in the slotted area of the valve stem and make sure the locking clip is positioned in the neutral position (see “Helpful Spraying Information” section). Insert the retaining pin. Push down on the handle a few times to distribute the lubricant evenly. Check filter (C) in end of shut-off valve for debris. remove filter and flush with water to clean out.

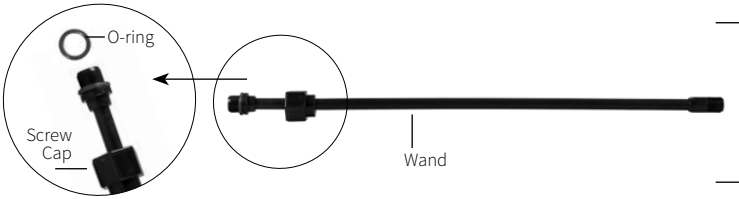
REPLACEMENT PARTS ORDER INFORMATION

CNSLD110020
Flat Fan Nozzle

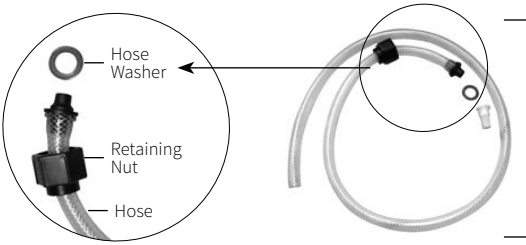
CCP68093
Poly Adjustable Nozzle

CCP68131
Nozzle Kit

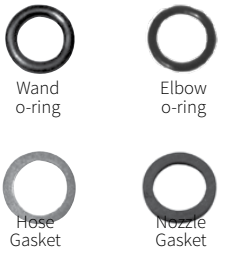
CCP68138
Shut-off Assembly



CCP68219
Wand Assembly



CCP68105
Hose Assembly

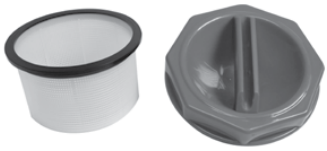


CCP68153
O-ring Kit

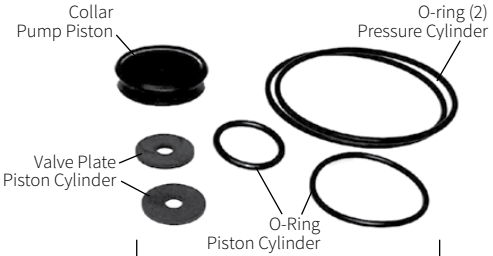
CCP68351
Straps

CCP68234
Pump
Piston
Assembly

PTCM0001L
Chemical Tank



CCP68350
Filter Basket & Cap



CCP8180
Piston Pump Repair Kit

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Rapid Spray, PO Box 3119, Singleton NSW 2330

Model ..... Serial No .....

Purchased From .....
(Dealer Name & Town)

Purchaser's Name .....

Purchaser's Address .....

.....

Purchaser's Phone Number .....

Purchaser's Email Address: .....

Disclaimer: If you don't want us to keep you informed of new products, please tick the following circle: ◯

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- ◯ Received Catalogue
- ◯ Newspaper advertisement
- ◯ Magazine advertisement
- ◯ Dealer recommendation
- ◯ Friends recommendation
- ◯ Better features than competitor product
- ◯ Quality & reliability
- ◯ Price
- ◯ Past experience with Rapid Spray products
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Rapid Spray Liquid Management Systems

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