


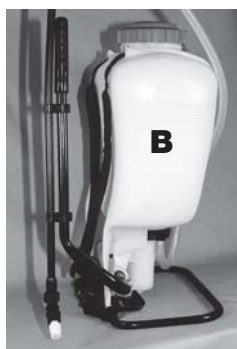
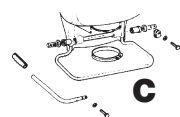
**IF YOU HAVE QUESTIONS OR CONCERNS, OR ARE MISSING PARTS DO NOT RETURN SPRAYER TO THE STORE!
PLEASE CALL OUR PRO HOTLINE AT 1-866-967-7677 Year Round: Mon. – Fri., 8:00 a.m. to 7:00 p.m., ET
March 1 – August 31: Sat. and Sun., 10:00 a.m. to 4:00 p.m., ET
Or write us at: Root-Lowell Manufacturing Co., 1000 Foreman Rd.
P.O. Box 289, Lowell, MI 49331
Visit us on the internet: www.rlflomaster.com
e-mail: service@rlflomaster.com**

**Instruction Manual & Parts Order Form
Backpack Sprayers**

Model 614P (Piston Pump) and 914P (Diaphragm Pump)

WARNING!!! THIS PRODUCT IS DESIGNED TO SPRAY CHEMICALS THAT MAY BE HARMFUL AND COULD CAUSE SERIOUS PERSONAL INJURY IF INHALED OR BROUGHT INTO CONTACT WITH THE USER. FAILURE TO READ AND FOLLOW OWNERS' MANUAL INSTRUCTIONS BEFORE USE AND/OR MISUSE OF THIS PRODUCT COULD RESULT IN EXPLOSIVE FAILURE WITH MAJOR INJURIES.

- **ALWAYS** water test sprayer before each use.
- **ALWAYS** wear long sleeve shirts, long pants, goggles, gloves and durable shoes.
- **ALWAYS READ AND FOLLOW** label instructions for the chemicals to be applied.
- **AFTER USE** release pressure and clean the sprayer.
- **ALWAYS RELEASE** pressure in sprayer before servicing.
- **DO NOT** alter the sprayer or any components.
- **DO NOT** spray flammable, caustic (i.e. acids, chlorines and bleach), corrosive, heated or self-heating solutions with this sprayer.
- **DO NOT** store liquids in the sprayer.

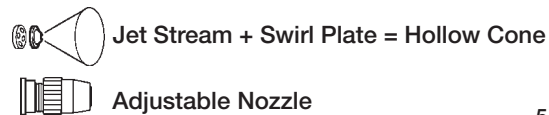
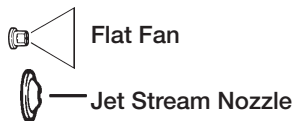
WARNING

Improper installation of foldaway pump handle may damage sprayer. Follow instructions below to ensure correct assembly.

Slide handle over the pump shaft and align the holes so that the rear portion of the handle points up and slightly forward at about a 45-degree angle (A). The handle can be rotated to either down (pumping) or up (storage) position (B). If desired, the pump handle can be mounted on the opposite side of the sprayer for right hand operation. As a result, the stop plate shown in (C) will need to be relocated to the left side. Mount the stop plate in the inside hole (closest to the center of the tank) in the pump shaft. Use the vertical hole in the handle for the left hand operation.

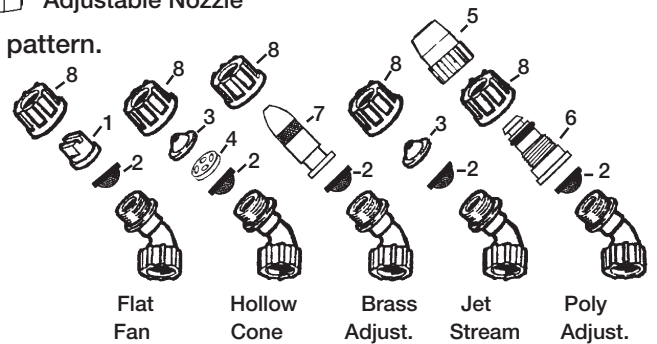
NOTE: The handle swings away from the sprayer then up or down to pump. The spray wand attaches to the clips on the handle for easy storage.

A. NOZZLE ASSORTMENT



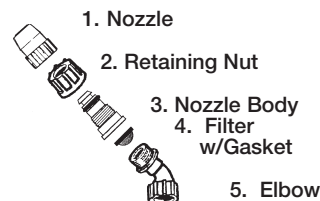
B. NOZZLE ASSEMBLY: Assemble as noted for desired spray pattern.

1. Flat Fan Nozzle
 2. Filter
 3. Jet Cap
 4. Swirl Plate
 5. Nozzle Cap
 6. Nozzle Body
 7. Adjustable Brass Nozzle*
 8. Nozzle Retaining Nut
- * Not standard on all RL PRO sprayers



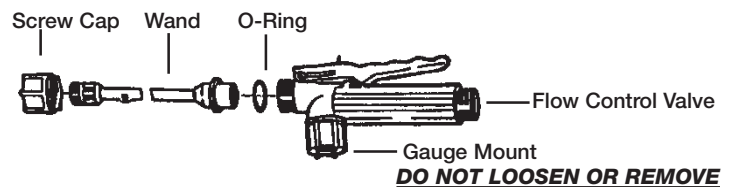
C. REMOVING ADJUSTABLE POLY NOZZLE

Unscrew the nozzle cap (1) from the nozzle body (3). This is best accomplished while the retaining nut (2) is tightly fastened to the elbow (5). Next, unscrew the retaining nut (2). Push the nozzle body (3) out of the retaining nut (2). The filter w/gasket (4) will come out with the body. To reinstall, reverse above instructions.



D. WAND ASSEMBLY

1. Insert wand into flow control valve as shown.
2. Tighten the screw cap (clockwise) onto the flow control. Hand tighten only.



E. PUMP HANDLE ASSEMBLY

1. Remove the bolt and nut from pump shaft.
 2. Slide handle assembly over the pump rod and align the holes so that the rear (elbow) portion of the handle points up and slightly forward away from the RL PRO logo on the tank. Reinstall bolt and lock nut. For right-handed spraying, pump handle can be installed on the opposite side of the tank.
- NOTE: Stop plate will need to be moved to the left side.



F. SHOULDER STRAP INSTALLATION

The tops of the shoulder straps are pre-attached to the sprayer via a buckle. The lower portion of the straps are attached by fastening the strap hooks to the metal frame where the frame exits the tank and bends.

G. FILLING THE SPRAYER

For best results, mix the spray solution in a separate container. Pour the spray solution through the filter basket in the tank opening. Pump the sprayer handle to prime the pump and fill the pressure cylinder. You are now ready to spray.

NOTE: Model 614P is for LIQUIDS ONLY; Model 914P is for WETTABLE POWDERS, WATER SOLUBLE SOLUTIONS and Liquids

H. SPRAYING

Prime the pump with rapid pump strokes. When you feel very firm resistance, the pressure chamber is filling with liquid. With repeated piston strokes, the air in the pressure chamber is slowly compressed. By pressing the hand lever, the valve opens and liquid is forced through the nozzle. The flow control valve has a retaining clip which keeps the valve in the OPEN position for continuous operation. Pump using the end of the pump handle as it is less fatiguing. The volume of liquid delivered varies with the working pressure built by pumping.

NOTE: Should the pressure drop very quickly, drain the tank completely and pump without liquid. With this procedure, the air chamber is refilled with the required volume of air. From time to time, it is advisable to pump the tank completely empty.

I. CLEANING THE SPRAYER

After each use, clean the tank thoroughly. If some spray solution remains, dispose of properly and drain tank completely. Follow recommendations of chemical manufacturer for proper disposal of any remaining spray solution. Pumping causes air to be taken in and the remaining liquid to be discharged. Pump until all liquid and air are completely discharged through the nozzle. Refill tank with a few quarts of soapy water (a mild dish detergent is recommended) and discharge as previously instructed. If necessary, repeat this procedure several times to insure that the sprayer is clean. If the flow control is removed, the pump can quickly be flushed. Improper, sporadic spray distribution is caused by a clogged nozzle. If necessary, remove and clean the nozzle.

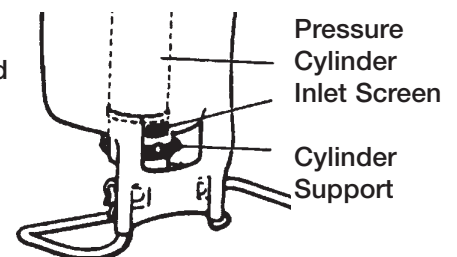
J. MAINTENANCE AND STORAGE

To protect the piston, cylinder and Viton collar, a fine-meshed, stainless steel screen is located on the pressure cylinder inlet. If you find that your sprayer will not empty the tank contents, check for a clogged inlet screen. The inlet screen is located at the bottom of the pressure cylinder on the side of the tank that rests against your back. One indication that it needs cleaning is that when you let go of the handle, it falls to the down position. The screen can be cleaned with a small bristle brush. See diagram for location of screen.

After use, the sprayer should be properly cleaned and stored away from direct sunlight to prevent UV damage. After removing the pump or when mounting a new Viton collar, treat both the collar and the piston with a lubricant (petroleum jelly or grease). Before storing for the winter, be sure that all liquid is completely drained from tank, lines and air chamber. (Refer to CLEANING THE SPRAYER instructions above.) Leave flow control locked open. Regularly inspect hose, wand, pump, tank and flow control for wear, damage or leaks. Repair if necessary.

Avoid excessive wear by:

- a. Regular lubrication of Viton collar, cylinder and piston.
- b. Prompt and thorough cleaning after each use.



Installation Instructions Piston Pump Repair Kit

Tools needed for kit installation: 6mm allen wrench, flat tip screwdriver, 11mm wrench or crescent wrench, long nose pliers, hammer, 13mm socket or wrench, T-25 torx screwdriver, grease or petroleum jelly, 2" x 4" x 18" piece of wood.

CAUTION: Make sure sprayer is completely drained of all liquid and pressure before attempting any repairs. Always wear protective gloves and goggles.

1. Using a 13mm socket wrench, remove the handle bolts and set aside. Lay unit on its back with pump assembly facing you. (Fig. 1). Loosen hose clamp (E). Pull off sprayer hose. Remove the nut and bolt from the protective cap (C). Loosen stop plate (A) but do not remove. Rotate the pump shaft to access the tow lever bolts in the center (B). Using a 6mm allen wrench, remove them. Remove the piston (F) out of the piston cylinder (D).

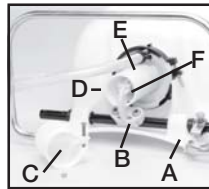


Figure 1



Figure 2

2. To remove the piston cylinder, turn cylinder counter clockwise when viewing from the bottom. Figure 2. **CAUTION:** The piston cylinder has sharp edges.



Figure 3

3. Check inside of the piston and cylinder for scratches. If the piston or cylinder are scratched, replace. Figure 3.



Figure 4

4. To remove connecting rods from the piston and lever, insert a flat tip screwdriver between the two connecting rods and twist. Figure 4.



Figure 5

5. With the new piston, place the two connecting rods over the studs on the inside of the piston. Place the lever studs into the connecting rods and snap together with your fingers. Figure 5.



Figure 6

6. To replace the Viton collar, push it off the top of the piston with your thumb. Figure 6. Install new collar on the piston onto the form fitted sides.



Figure 7

7. Remove the valve plate and o-rings from the outside of the piston cylinder. Install the new valve plate and the two o-rings making sure the o-rings seat into the grooves. Finally, inside the piston cylinder you will find a second valve plate. Using needle nose pliers, pull out the red or orange pin and remove valve plate. Figure 7.

Install new valve plate and firmly reseal the retaining pin using the needle nose pliers. Figure 8.



Figure 8

8. If necessary remove the pressure cylinder by unscrewing the pressure regulator control, if equipped. Remove the large clamp at the bottom of the cylinder. Use a block of wood and hit forcefully with a hammer driving the assembly through the bottom of the tank. Figure 9.

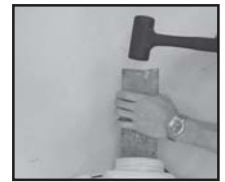


Figure 9

9. Next, assemble the piston cylinder. First, lubricate the o-ring on the piston cylinder, being careful not to get any grease/oil on the valve plate, and then place the piston cylinder into the pressure cylinder. Screw the piston cylinder clockwise until it is tight and the bottom o-ring is no longer visible. Figure 10. When properly seated the notch on the piston cylinder (G) will line up with the indent on the pressure cylinder (H). Figure 11.



Figure 10

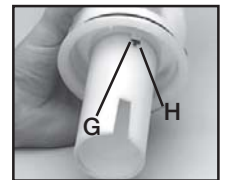


Figure 11

10. Apply a light coat of grease/oil to the inside of the piston cylinder wall and on the Viton collar, and then reinstall the piston into the piston cylinder. Figure 12. To insert the piston tilt at a slight angle with the leading edge of the Viton collar placed over the slot. When seated, install the 6mm allen head bolts through the lever base into shaft. Replace the protective cap and tighten the nut and bolt. Reinstall the handle. Retighten the stop plate, making sure the bolts goes through the rear hole. Replace the hose and black hose clamp making sure it is firmly secured.



Figure 12

NOTE: Once repair is complete, fill with water, pressurize and check for leaks. If it leaks, DO NOT USE. Repair leaks and recheck.

Installation Instructions Diaphragm Pump Repair Kit

Tools needed for kit installation: 6mm allen wrench, flat tip screwdriver, 11mm wrench or crescent wrench, long nose pliers, hammer, 13mm socket or wrench, T-25 torx screwdriver, grease or petroleum jelly, 2" x 4" x 18" piece of wood.

CAUTION: Make sure sprayer is completely drained of all liquid and pressure before attempting any repairs. Always wear protective gloves and goggles.

1. Using a 13mm socket wrench, remove handle bolts and loosen the stop plate (A) and remove the two allen head screws (B) that hold the connecting pieces to the pump rod. Fig. 1.

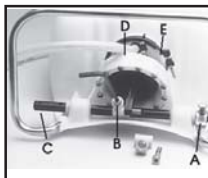


Fig. 1

2. With unit laying on its back with the pump assembly facing you, remove the pump rod (C). Loosen hose clamp and remove pressure hose (D). Next, loosen the clamp at the base of the sprayer (E). Fig. 2.



Fig. 2

3. Push the pressure cylinder approx. 1" out of the bottom of the tank. Then turn the pump assy. 180 degrees. **NOTE:** Wooden block may be used to tap the pump assembly through the bottom of the tank. Remove pressure regulating valve, if equipped, before removal of cylinder.



Fig. 3

4. Next remove the 12 torx screws that hold the flange in place. The flange and diaphragm can then be removed. Fig. 3. **NOTE:** For clarity the pressure cylinder is shown removed from the tank.

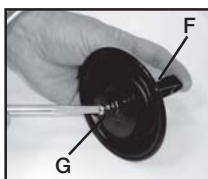


Fig. 4

5. To replace the diaphragm, remove the connecting rod retaining screw (G) from the plunger and lever (F). Replace diaphragm and reassemble. Fig. 4.

6. The valve assembly (H) is removed using a locally made tool. Remove red valve plate retaining pin using needle nose pliers, then insert tool into slots. Fig. 5. Use a screwdriver to rotate tool counter clockwise.



Fig. 5

7. Once the valve assembly is removed, the valve plates and o-rings can be replaced. The bottom valve plate is secured into place with a red retaining pin. Push pin into place using needle nose pliers. Fig. 6.



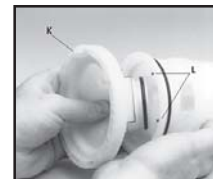
Fig. 6

8. The pump housing (I) is separated from the pressure cylinder (J) by pulling it off. Fig. 7. The o-ring can then be replaced.



Fig. 7

9. When reassembling the pump housing to the pressure cylinder, be sure the square tab on the pump housing (K) is aligned in the notch. See arrows (L) on the pressure cylinder in Fig. 8. Be careful not to pinch or nick the o-ring. **NOTE:** Grease o-rings for reassembly. Screw the valve assembly into the cylinder.



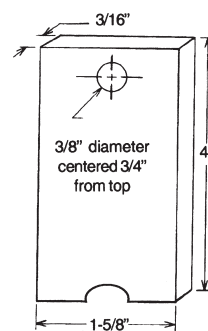
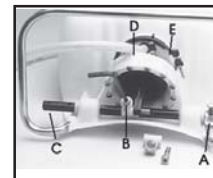
10. Place diaphragm assembly (O) onto the pump housing (M). Place flange (N) over the diaphragm. Reinstall the 12 torx screws around the outside diameter of the flange. Fig. 9.



11. Push pressure cylinder onto the tank being careful not to pinch the large o-ring (P). **NOTE:** Wooden block may also be used for installation of the pressure cylinder.



12. Tighten pump cap securely (E). Install pump rod (C). Reinstall the connecting pieces and allen head screws (B). Reinstall the stop plate (A) making sure that the bolt goes through the rear hole. Reinstall the hose and hose clamp making sure it is firmly secured (D).



Locally made tool

SPARE PARTS

