

# **EQUIPMENT OPERATION MANUAL**

## **LOW PROFILE MODELS PC39 & PC40 12 Volt, 25 Gallon Unit**

Manufactured By:  
SYSTEMS Environmental Products

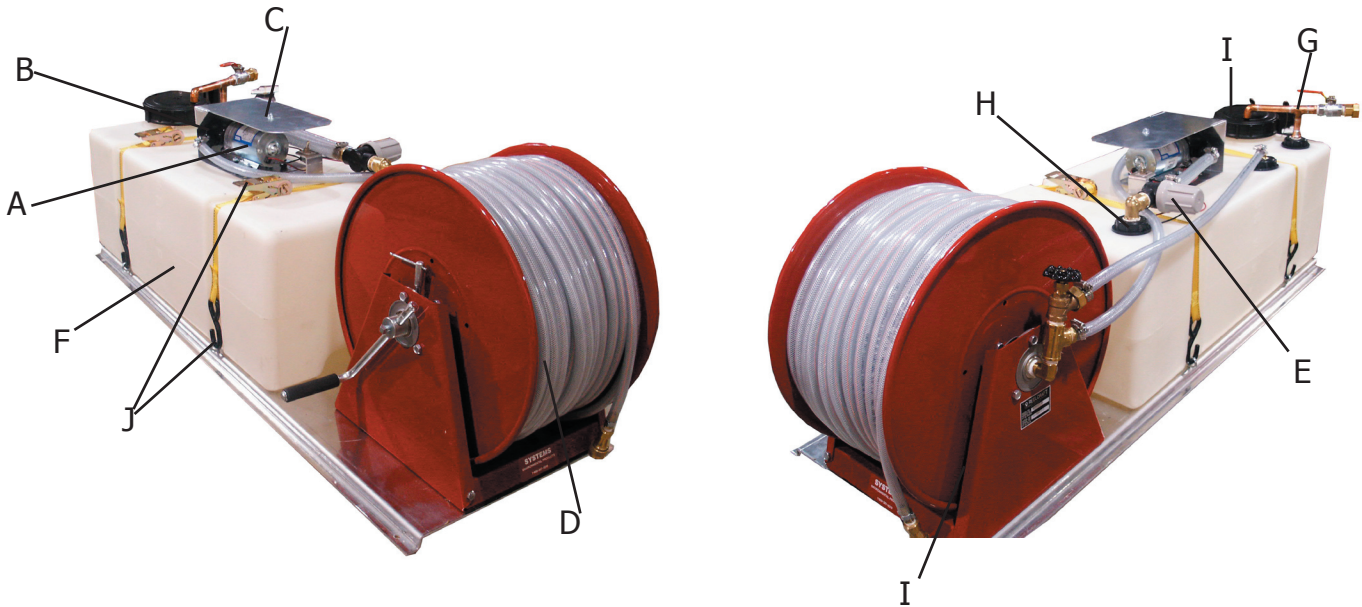
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[www.pestspray.ca](http://www.pestspray.ca)

# NEW UPGRADED FEATURES

## For The 2006 12 Volt Perimeter Defense Unit.

### Model PC39 & PC40 Low Profile Dimensions

### 53"L x 16"W x 18"H

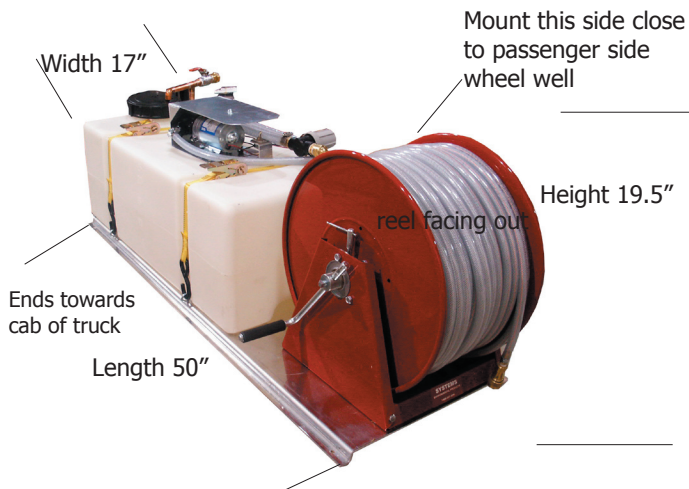


- (A) New Shurflo pump model part# 8000-543-238 100 psi - increased flow
- (B) Shurflo quick change nuts on inbound and outbound of pump for quick removal. Part#8-158-01
- (C) Aluminum weather cover over pump Part# TI7675
- (D) Increased length of treating hose to 300' on larger hose reel. Part# PVC-128.300
- (E) Large one piece cartridge filter for simple servicing and cleaning. Part# AG1221/2PP100
- (F) Low profile 25 gallon tank to fit under low profile truck caps. Part# RTB00025-34
- (G) Copper air gap tank fill with ball valve. Part# PC41/COPPER
- (H) 3/4" Copper suction tube inside tank for maximum suction and drain of tank
- (I) Lock cable on tank lid for security. Part# PC39
- (J) Optional tank ratchet strap tie downs or galvanized tank straps Part# RATSTR
- (I) Larger 10" Manual hose reel Part# H18005-M88

#### Optional Accessories:

- MJW-01 - quick change multi tip 24" brass #31 gunjet wand
- ACW-01 - Adjustable cone#8 or #5 nozzle 24" brass #31 gunjet wand
- EW-02A - Lightweight, aluminum 6-12' extension pole with #8 or #5 adjustable cone nozzle
- EW-01F - Fiberglass 6-12' extension pole

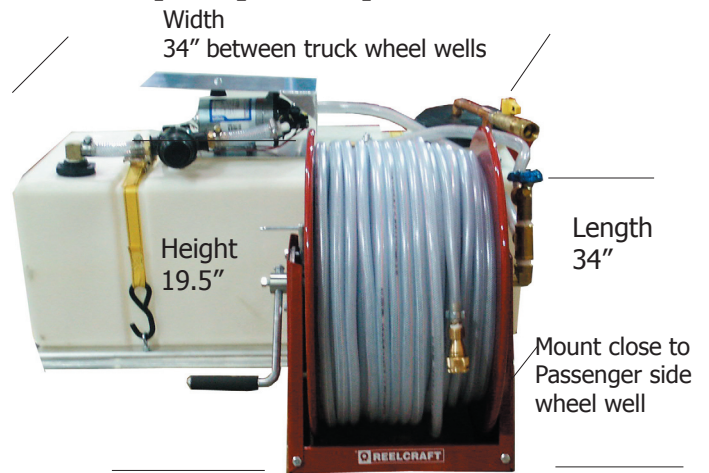
# Perimeter Defense 12 Volt Sprayer Options



Model: PC39

Dimensions: 50"Long x 16"Wide x 19.5"High

Note: This model is designed to sit length-wise in the truck bed with the reel facing out the tailgate provide a 360 view around the truck



Model PC40

Dimensions 34"Long x 34"Wide x 19.5" High

Note: This shorter length model is designed for use on 6' trucks with a tool tainer or higher top-per cap.

**Both of these base models come complete with a 24" brass, adjustable cone nozzle wand and entire 12 volt wiring kit from pump to truck battery.**



## OPTIONAL ACCESSORIES:

There are a number of accessories you are able to purchase and/or interchange onto your base model requirements prior to placing your order.

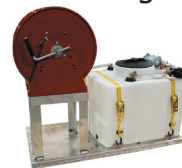
Part#	Description
PC74A	Universal, aluminum reel pedestal

GUIDE-1	Roller hose guide for 10" manual reel
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MJW-01	24" wand with 4 way fingertip nozzle head
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PC-B7607	High flow adjustable barrel gun
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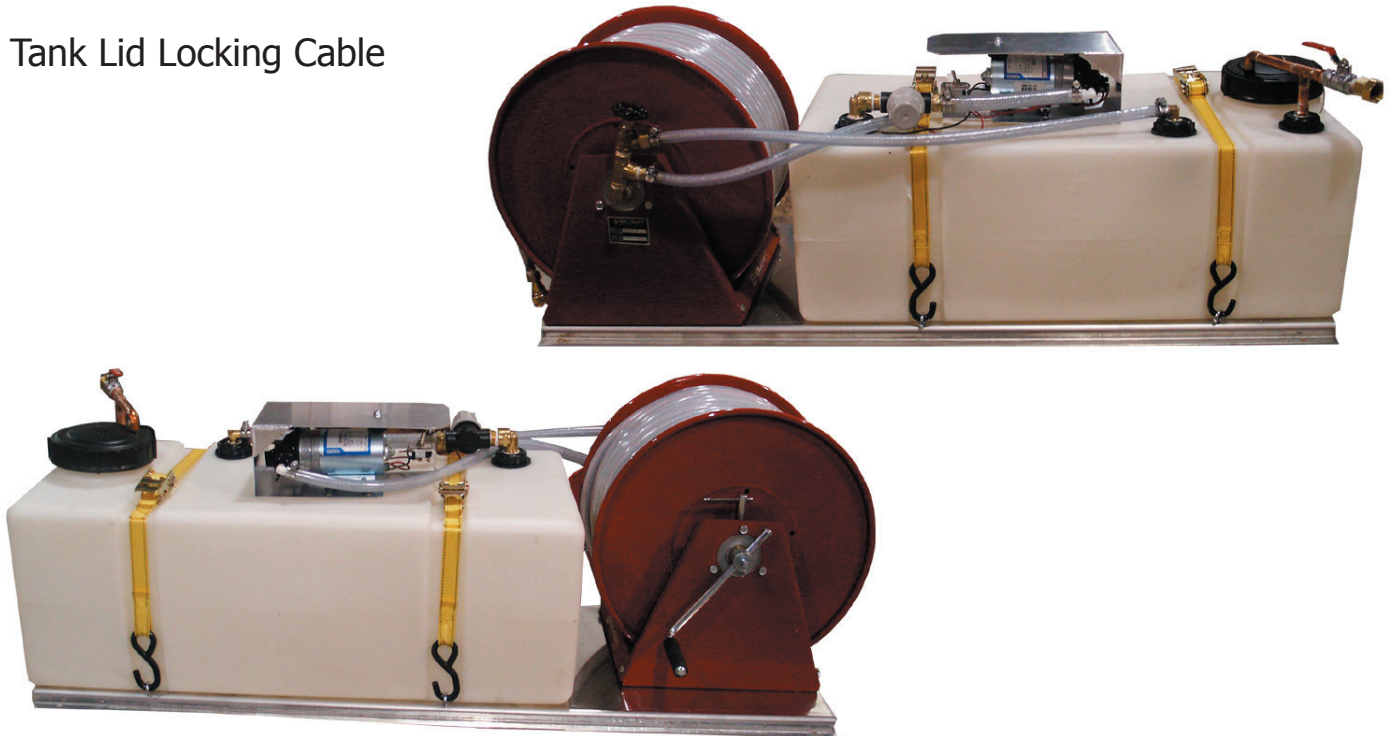
EW-02A	6-12' aluminum or fiberglass extension pole
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## PC39 & PC40

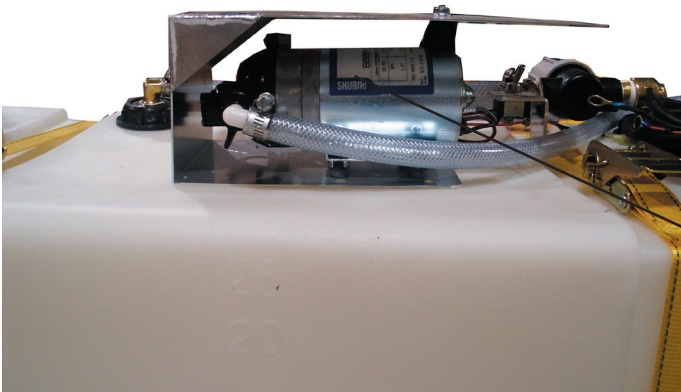
The PC39/ORK has been equipped with the following features:

- \* 25 gallon low profile poly tank
- \* 1.8 GPM, 100PSI 12 volt pump
- \* Pressure regulator & gauge assembly on reel
- \* 300 Feet 3/8" PVC hose
- \* Quick Removal flynuts on hoses of pump
- \* Suction feed design made entirely of copper
- \* Manual hose reel, Larger 10" reel
- \* Wiring harness c/w fuse link
- \* Inline filter with full body cartridge
- \* Unit comes standard with 24" brass wand and adjustable cone nozzle
- \* Complete copper air gap fill with ball valve shut off.
- \* Tank Lid Locking Cable



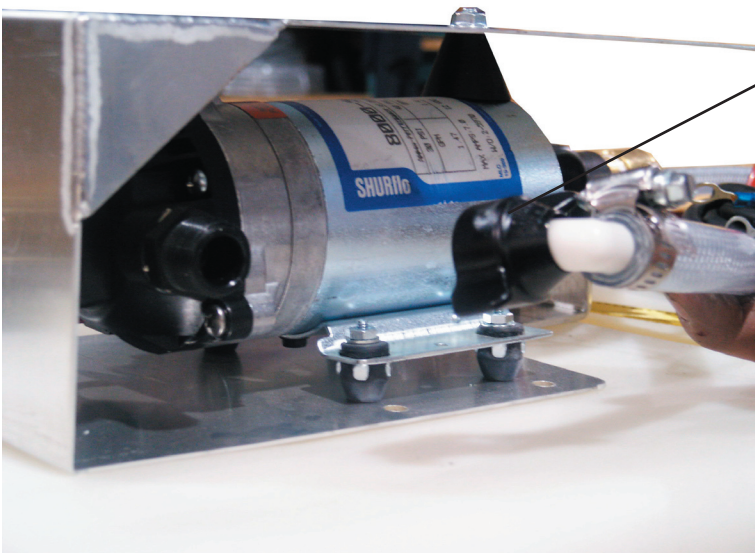


## PC39 & PC40 Components



Pressure switch and pump head assembly  
Part# 94-375-18

1.8 GPM, 100 PSI pump part# 8000543238



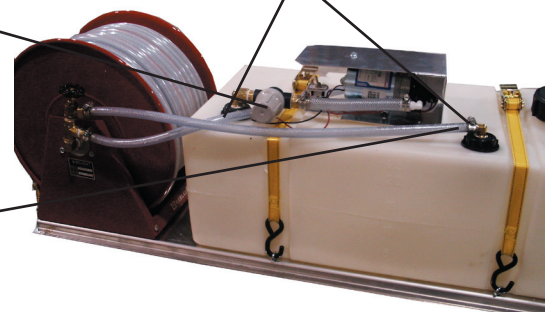
Shurflo quick flynuts for quick  
release pump  
Part# TL7444

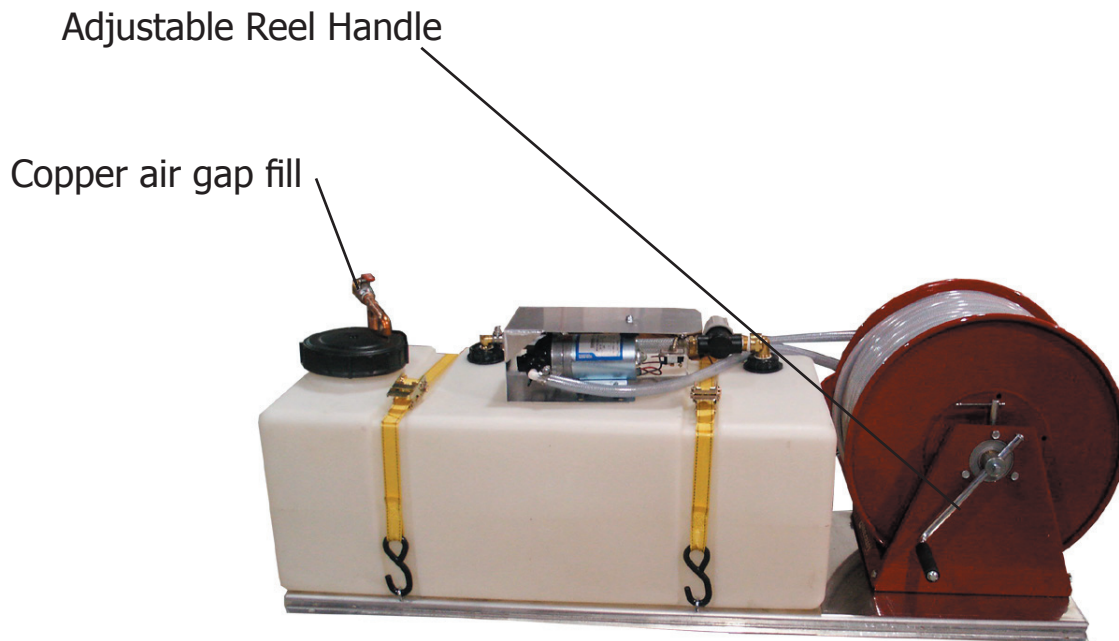
Return Line

Suction Line

In-Line Filter

Pressure regulator  
valve & Gauge





System has an aluminum frame to eliminate rusting. Outer rails are for installation with four bolts.

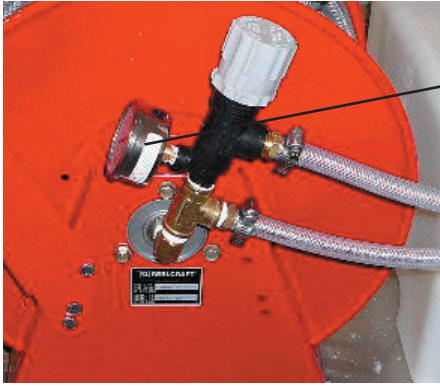


A package containing a wiring harness, fuse link and other materials is provided to install the system correctly.

The wiring harness is to run to the engine compartment and then can be connected directly to the battery.

**NOTE:** Do not connect system to any other power source. Taillight or cigarette lighter wiring will burn out and a fire could start.

## April 2007 & Newer Models



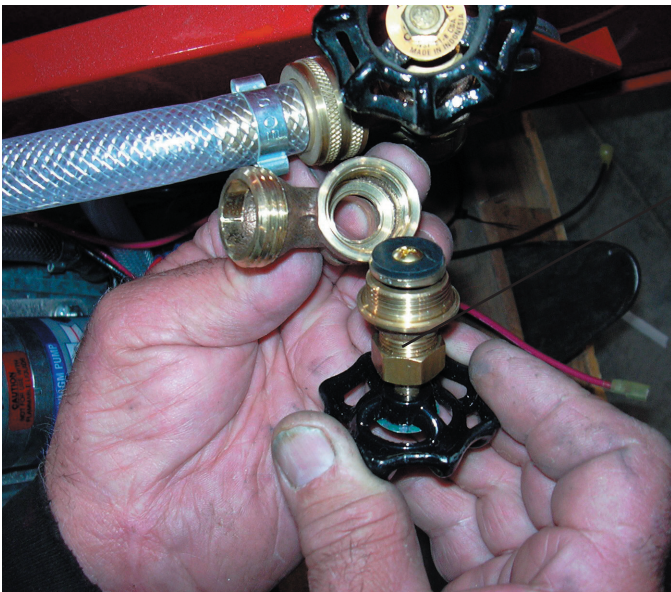
Pressure Regulator controls agitation back to the tank as well as handgun output and pressure.

## 2005-2006 Models

### \* **Make note: Important** \*

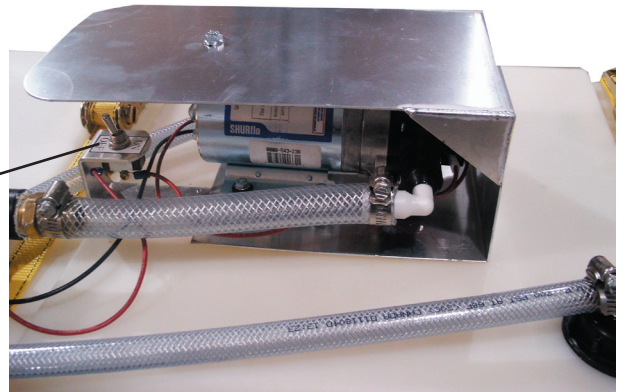
Extending the life of your pressure switch on your pump from over heating at constant high pressure operation can be achieved by using your gate valve on the reel.

\* **Carefully Read Page 8 instructions**\*



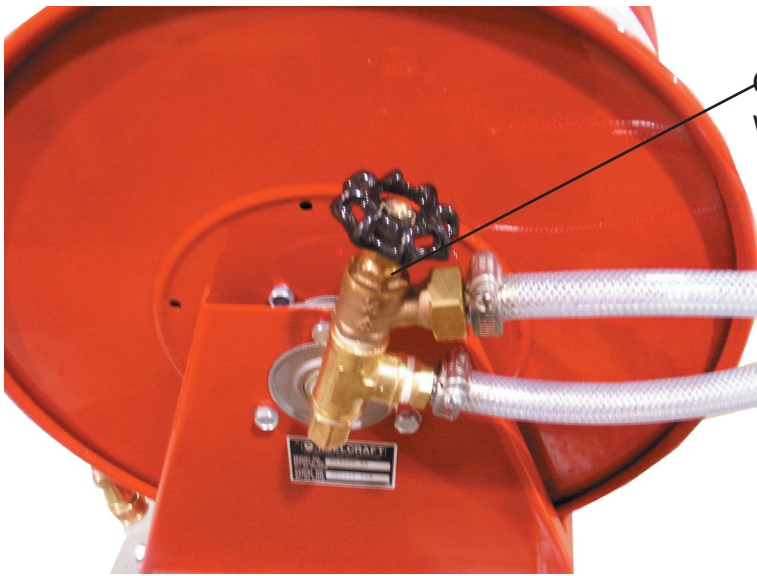
Gate valve has a flat seal which will require servicing. Flat seal can be replaced with a standard screwdriver. Be sure to lubricate valve stem before re-installing.  
Seal Replacement Part# VU-2221

System on/off switch is located on the main frame just to the side of the pump.





**For 2005-2006 Models**  
**Important Note & Steps you follow to extend the life of your**  
**pump pressure switch**



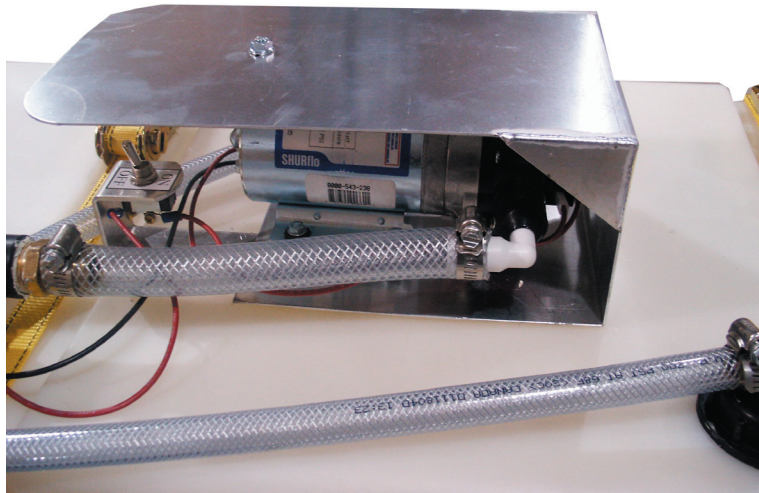
Gate valve controls agitation back to the tank as well as handgun output and pressure.

Make note that your stronger ShurFlo pump model 8000-543-238 has been preset to achieve 80 psi at the treating wand. This higher output enables you to reach application areas better than any past ShurFlo-PDS unit rigs in the field. With that being said this higher pressure places greater strain on the pumps pressure switch. It is important that all applicators open the gate valve on the reel when doing lower applications such as bungalows and ground -perimeter treatments. Opening this gate valve slightly until the pump comes on and runs continuously will result in a dump back agitation to the tank and no demand on the pump pressure switch. Thereby extending the life of the electrical pressure switch on the pump.

Failure to execute this operational protocol regularly will result in periodic heating of the pressure switch.

Potential wire melting and necessary replacement of the pressure switch. (Part# 94-375-18 cost \$27.54)

## High Volume Model 8000 Series Pumps



PCO39 & PC40 Pump & Hose Alternatives High volume pump utilizes two large fly nuts to allow for fast removal when repairs are required. Higher volumes can speed up the job and provide a better application depending on the pest you are treating for. Increasing pump size and larger hose diameter will dramatically increase your output flow.

## 2005-2006 Models



The pressure and water volumes back to the tank are controlled with a gate valve which is attached to the hose reel. Opening this valve reduces handgun output and pressure. The pump is equipped with an automatic shut-off when the pressure reaches approximately 45 PSI. Closing the valve completely provides maximum flow.



## April 2007 Models With Regulator & Gauge

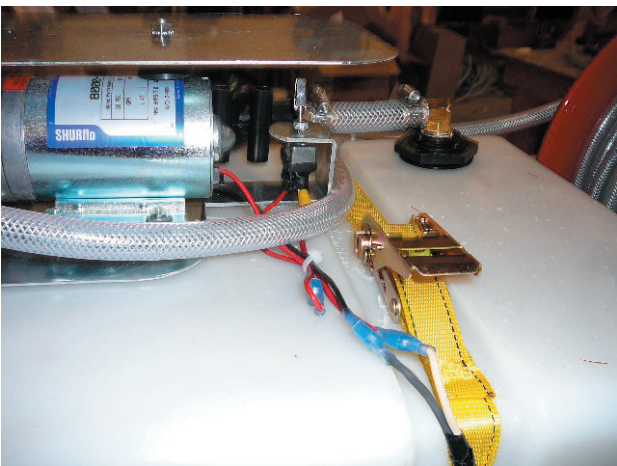


Pressure Regulator preset at 70 psi with your treating gun closed is the desired setting. Allowing 65-60 psi to the treating gun and ample dumpback to the tank for agitation when the treating gun is not in use.

## Shurflo Pump Wiring



The two red wires to the pressure switch have been removed. The pump will run continuously when switched on. Provided 60 psi to the treating hose from the regulator.



The red wire on the pump motor is equipped with a quick connect terminal wire on the toggle switch. The second red wire on the toggle switch connects to the white wire (positive) on the wiring kit going to the positive on the battery. The black wire on the pump connects to the black ground wire on the wiring kit.

# 2005-2006 Models Only

## SHURFLO Pump Wiring Diagram for PC39 & PC40 Units

On 2006 an newer 12 volt PDS rigs using a ShurFlo 12 volt pump we have incorporated a solenoid to assist in reducing the amperage heating on the pump pressure switch. Please review the wiring steps and photos for your reference.

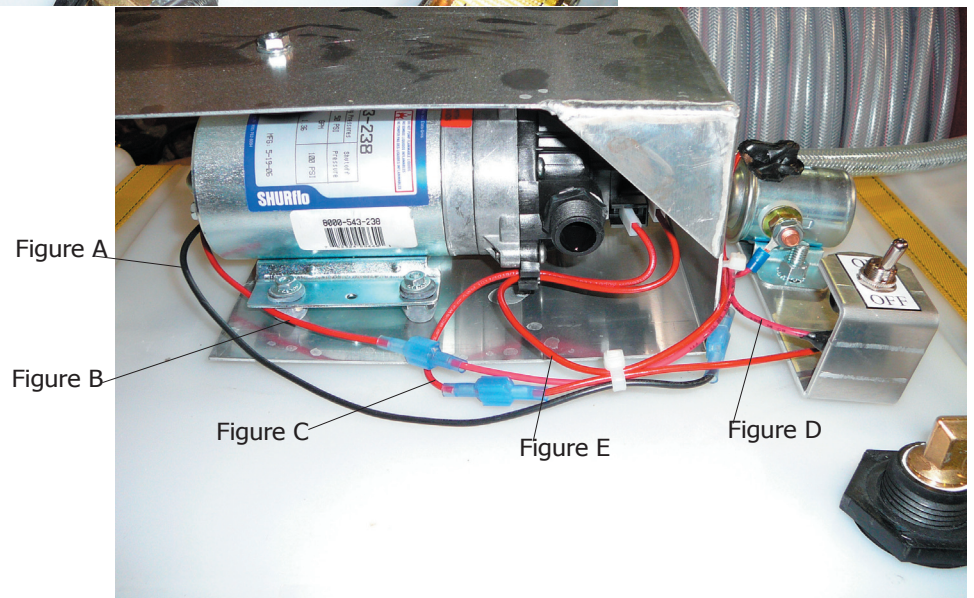
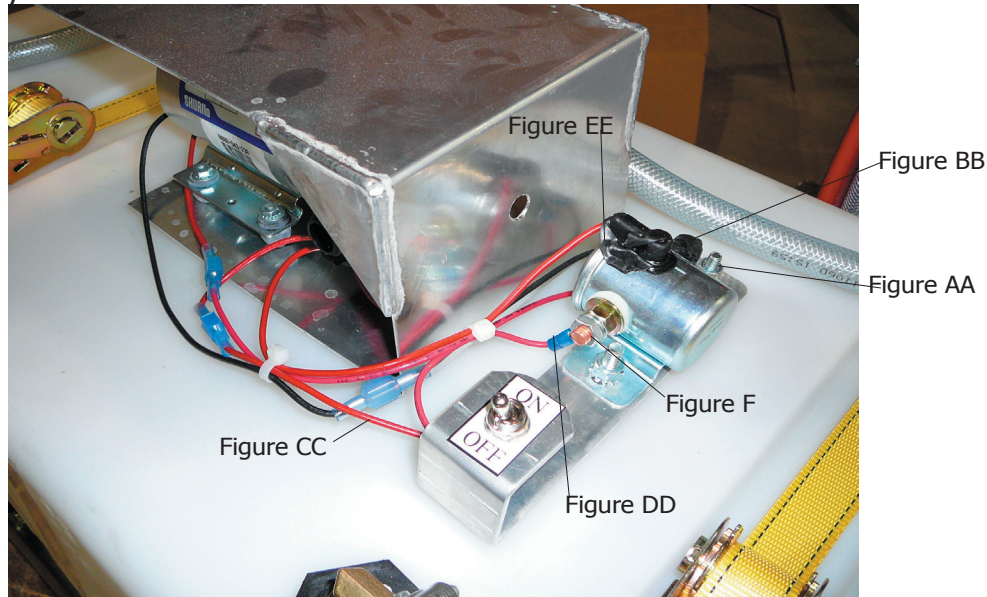


Figure A shows the black ground wire on the motor end of the pump going to a ground post by the solenoid in Figure AA  
Figure B shows the red wire on the motor end of the pump going to the far side of the solenoid beside the ground post black wires in Figure BB

Figure C shows the lower red wire on the pump pressure switch going to the on side of the toggle on/off switch in Figure CC

Figure D shows a second red wire connecting to the off side of the on/off toggle switch. The other end of this red wire is connected to the closest side post on the solenoid in Figure DD

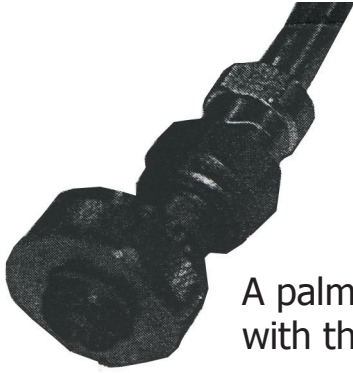
Figure E shows the upper red wire on the pump pressure switch going to the small top post on the solenoid in Figure EE

Figure F shows where the positive cable (white cable) on the 24' wiring kit needs to be attached to provide power from the truck battery.

Note: If you attach the positive wiring kit cable (white cable) to either of the two other posts on the solenoid you will have direct power from the truck battery with no way of shutting the power off using the on/off toggle switch. The power from the truck battery needs to always be connected to the solenoid post that has a red wire going to the on/off toggle switch.



# Adjustable Cone Nozzle & Multi-Tip Spray Wands



A palm trigger gun and multi-tip spray wand comes complete with the system. The rotational head provides four types of spray patterns:

- 1- Pin point
- 3-Fan sprays

## To Remove Spray Tip:

- 1) shut off line pressure
- 2) Unscrew retainer ring (8) from tip holder (1)
- 3) Remove spray tip (2) by pushing out front end of tip form tip holder (1)

## To Replace Spray Tip (2)

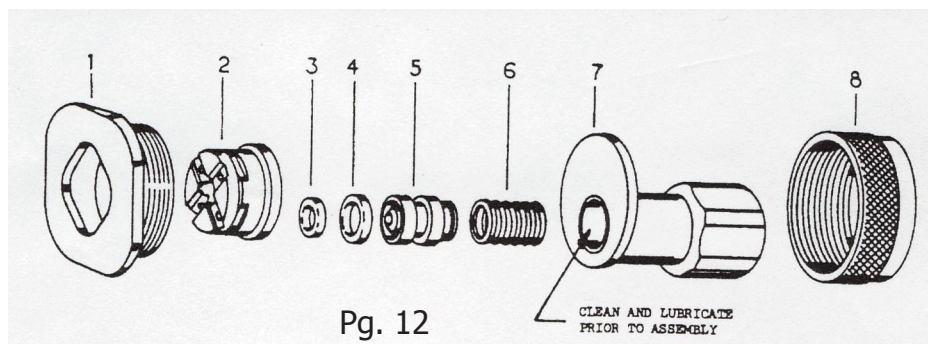
- 4) Position spray tip (2) into the tip holder (1) Be sure flats on spray tip (2) lined up or matched up with flats inside tip holder (1)
- 5) Hold retainer ring (8) with knurled end upwards and insert inlet subassembly (7) with the inlet end of the body going in first.
- 6) Snap spring (6) onto seat follower (5) Place "O" ring (4) and "O" ring (3) in place on follower (5). Insert all three parts into inlet body sub assembly (7)
- 7) Screw retainer ring (8) onto tip holder (1) and tighten.

## To Remove "O" rings (3) and (4)

- 1A) Processed as in steps 1 and 2
- 2A) Pull out seat follower (5) from inlet sub assembly (7)
- 3A) Remove "O" rings (3) and (4) from seat follower (5)

## To Replace "O" Rings (3) and (4)

- 4A) Slide the "O" ring (4) onto the seat follower (5)
- 5A) Insert "O" ring (3) onto the groove on the seat follower (5)
- 6A) Proceed as in steps 5 through 7



# Systems

Environmental Products

**Your Custom Equipment Fabricator**

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## **Perimeter Defense System Treating Tools we have to offer**

Extension Wands:

Part# EW-01F: Extension wand 6'-12' Fiberglass (weighs 5 3/4 lbs)

Part# EW-01A Extension wands 6'-12' Aluminum (weighs 5 lbs)

Part# EW-02A Extension wand coiled hose 6' to 12' Aluminum (weighs 3 1/2 lbs)

Part# EW-03A Extension wand coiled hose 4'-8' Aluminum (weighs 2 3/4 lbs)

Part# EW-04F Extension wand 9'-18' Fiberglass (weighs 7 lbs)



Brass Gunjet Wands

Part# ACW-01 Adjustable cone nozzle 24" wand



Part# MJW-01 Multi tip nozzle 24" brass wand



Adjustable Barrel Gun

Part# PC-B7607 Spray gun with adjustable barrel

Note: All 3 nozzles below fit the PC-B7607 gun.

Optional interchanging flood nozzles for higher output of products:

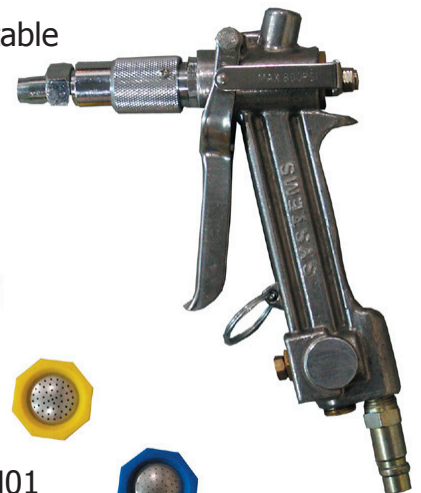
GN01  
3 GPM



YN01  
2 GPM

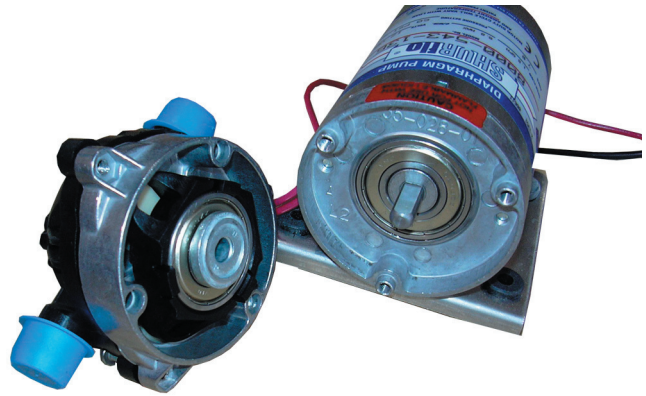


BN01  
1.5 GPM

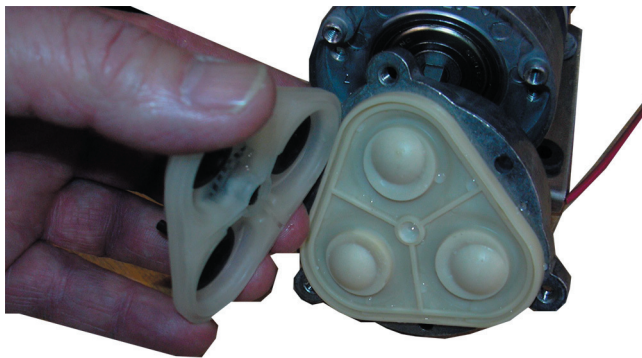


The Shurflo pump has been preset for optimum performance. The set screw located in the head assembly is what controls the pressure output. Adjustment of the set screw increases the spring pressure of the switch as shown. In order to rebuild pump, follow the procedures listed below:

1) Remove the head assembly screws



2) Inspect the diaphragm and valve plate assembly, replace parts as required.



3) The pressure switch should also be replaced as this time.





# Repair Kits for 8000 543 238 Pumps



All Shurflo Pumps have packaged repair kits

Diaphragm/Drive Assembly  
Part#94-385-32 Drive Assembly  
Part# 94- 395-06 Diaphragm Assembly



Valve Plate Assembly  
Part# 94-390-05 New 2004-2005 Pump  
#8000543238



Pressure Switch  
Part# 94-375-18 New 2004-2006 Pump# 8000543238

# Troubleshooting The Pump

## **Pump Will Not Start:**

### **Check**

Fuse or Breaker  
Electrical connections at battery or pump losing contact  
Pressure switch wiring on top head of pump  
Wiring harness may have cut or exposed wire causing short  
Wire quick connectors may not be contacting each other - press firmly together.

## **Will Not Prime (No discharge/Motor runs)**

### **Check:**

Out of product  
Blocked screen in filter  
Pick up tube or vacuum leak in fittings or hoses on suction side of pump  
Inlet/Outlet tubing severely restricted (kinked)  
Debris in pump inlet/outlet valves  
Check Pump housing and inbound flynut connections for cracks  
Damaged or worn diaphragms and valve assembly

## **Leaks From Pump Head or Switch**

### **Check:**

For loose screws at switch or pump head  
Switch diaphragm ruptured or pinched  
Cracked pump head

## **Pump Will Not Shut-Off (pressure switch equipped)**

### **Check**

Boiler tap dumpback on hose reel open allowing pump to pick up and circulate back into tank continuously  
- Replace Flat washers inside boiler draw tap..  
Output line closed and no leaks  
Air trapped in outbound line or pump head  
Inlet/Outlet valves for debris or swelling  
For loose drive assembly or pump head screws  
Pressure switch failure  
Blocked filter or pick up tube

## **Noisy/Rough Operation**

### **Check:**

Mounting feet that are compressed to tight  
For loose pump head or drive screws  
Vacuum leak  
Blocked filter or pick up tube in tank

## Model PC39 & PC40 Extended Parts breakdown and Miscellaneous Accessories

<b>Part#</b>	<b>Description</b>
8000-543-238	12 volt shurflo pump (1.4 gpm, 100 PSI, 3/8 female threads)
8-158-01	Fly nuts for shurflo pump inlet and outlet 1/2" hosebarb
8-159-01	Flynuts for shurflo pump inlet and outlet 3/8" hosebarb
3M1238G	3/8" x 1/2" reducer bushings for 3/8 part pumps
VU-2221	Tap seal for boiler draw (Alfas impregnated seal)
1370A	Brass replacement swivel for Reelcraft reels
112-D	Brass connecting nipple for 1370A swivel
RATSTR	Ratchet strap tie downs (pair)
TANKSTRAP	Galvanized metal banding fo fasten tank
FO101-D	Tee, 1/2" female
HC9-12	two-ear clamp for hoses
195-8	Garden hose connection 1/2" female x hosebarb
WT-98	Wire connector
622-121	Wire connector
622-118	Wire connector
5/16x1BNW	Bolt nut washer
10X3/4STSCREW	Self tapping screw
#10W	Red wire, 10 gauge for battery connections
#10WB	Black wire, 10 gauge for battery connections
125-6B	Hosebarb male, 3/8: hose x 1/4" npt
139-10C	hosebarb male, 90 degree elbow 1/2"
99-D	Elbow female 90 degree 1/2"
5582	on/off toggle switch
PVC-128	1/2" hose Price per foot 200 to 300' coils
PVC-106	3/8" hose price per foot 200 to 300' coils
122-DB	reducing nipple 1/2" x 1/4"
122-CB	reducing nipple 1/2" x 3/8"
110-DB	Bushing pipe
125-8B	Male hosebarb 1/2" hose x 1/4" npt
116-C	Street elbow 3/8"
126-8D	Female hose barb 1/2" x 1/2"
RTB0025-34	25 Gallon Low Profile tank
TL7675	12 volt pump cover
PC41	Air gap tank fill PVC & Ball valve
PC41/COPPER	Air Gap tank fill copper and ball valve
3242024	Inline filter to strain out debris
PC11	Brass female disconnect
PC10	Brass male nipple
HI8005	10" manual Reelcraft reel complete with grease fittings
WIRE-KIT01	Wiring harness from truck battery to unit in bed of truck
224-D	Boiler draw tap for adjusting return to tank
BOW-01	Complete brass wand with 8005 borate fan tip
ACW-01	Complete brass wand-adjustable cone nozzle
MJW-01	Complete multi tip brass wand
AG12033H	Brass multi tip nozzle only
AG5500X8	Adjustable cone nozzle only #8
AG5500X5	Adjustable cone nozzle only #5
AG117505	Brass check valve
VU-2222	Large o-ring for multi tip nozzle
VU-2223	Small o-ring for multi tip nozzle
CP12270-SS	Retainer for multi tip nozzle
CP12271-302SS	Spring for multi tip nozzle
PC-B7607	Adjustable barrel treating gun for more volume
EW-01	Adjustable extension wand 6' to 12' Fiberglass
EW-02A	Adjustable extension wand 6' to 12' Aluminum