Medi-Flow™

H.E. Anderson Company

Installation & Operation Manual

Model M101D and Model M101

Serial No. _____

Thank you for purchasing the Medi-Flow™ Medicator by H.E. Anderson Company. You have purchased a very accurate and dependable medicator that will last you many years.

The Medi-Flow™ was designed to be very simple to use and operate. We will go through the installation steps a little later in the manual. Providing you do need to order parts, there are part breakdowns in the rear of this manual.

1. UNPACKING

First and foremost, check the contents of the shipping box for damaged or missing components. If there is damage to any of the components, you should contact the delivering carrier and report the damage. If there are missing parts, please call your distributor.

Below is a list of the parts you should have received:

(1) Medi-Flow™ (assembled)
(1) Suction Valve (p/n 06742)
(1) Discharge Valve (p/n 02857)
(1) Foot Valve (p/n 07288)
(1) Priming Injector (p/n 03830)
(1) 3' Piece of Black Tubing,3/8"
(1) 10' Piece of Clear Tubing,3/8"
(1) 5' Piece of Red Hose,3/4"
(1) Owners Manual

Let's get started with the installation and we hope you enjoy using your new Medi-Flow™ for many years to come.

2. INSTALLATION

The only pipe connections that should have to be made are the inlet and the outlet connections. The Medi-Flow™ has 1/2" NPT pipe connections. You can use other size of adaptors/bushings if you wish. *The Medi-Flow™ should be installed in a bypass to allow you to service it, if the need arises.*

BE SURE TO CONNECT THE INLET TO THE INLET AND THE OUTLET TO THE OUTLET !!

Now let's connect the chemical fittings. Install the priming injector (p/n 03830) into the bottom of the 1/2" galvanized tee. Then, connect the suction valve (p/n 06742) into the bottom threaded hole of the pumper. Now, connect the discharge valve (p/n 02857) into the top threaded hole of the pumper.

NOTE: THE VALVES HAVE YELLOW ARROWS STAMPED ON THEM. THESE ARROWS MUST POINT UP WHEN INSTALLED!!

The foot valve (p/n 07288) goes into the chemical tank.

The only thing left is to connect the plastic tubing. The plastic tubing connects to the valves by compression fitting. Remove the knurled nut from the valves and slide them onto the appropriate tubing. Now you can connect the tubing to the appropriate valve. ***IMPORTANT:*** The clear tubing goes from the foot valve to the suction valve. The black tubing goes from the discharge valve to the priming injector.

NOTE: NEVER USE THE CLEAR TUBING ON THE DISCHARGE SIDE. IT IS NOT RATED FOR HIGH PRESSURES!!

Connect the 3/4" red hose to the hosebarb on the pilot valve. There will be waste water emitted from this hose during the pumping cycle. The volume emitted will be approximately three(3) times that of chemical pumped. The water that is

emitted is clear, untreated water. This hose must vent to atmosphere and cannot be elevated or restricted.

You are now ready to apply power to your Medi-Flow™. *Use a power surge protector to help prevent electrical surges from damaging the Medi-Flow™. Power surges, lightning, and other "acts of God" are not covered under the warranty.* The Medi-Flow™ uses ***12VDC*** power to operate. Do not run 120VAC directly into the Medi-Flow™. Always, use the supplied transformer when possible. Once you have applied power, we are ready for the initial system check.

3. INITIAL SYSTEM CHECK

After all fittings and tubing are connected and power has been applied, you should watch the lighted indicators located in the cover. Refer to Form PC0400C in the rear of this manual for the following checks. The power light(red) should be on constantly. The flow light(yellow) should flash when there is water flowing. The valve light(green) flashes when the Medi-Flow™ makes a pumping cycle (depending on the volume of water flow, it may take several seconds for this light to flash). If these lights are operating correctly, jump to the "SETTING THE PUMPER" section.

If the lights are not operating correctly, immediately unplug the Medi-Flow™ and call your distributor to report the problem.

The flow counter/totalizer (if ordered) will start to count. This counter is resettable and is equipped with a 10 year battery to retain memory. You can also use the counter as a quick check to determine if your feeding the correct amount of chemical. To do this, set the pumper to 2oz/gal. Reset the counter. Now, for every gallon counted by the counter, the pumper should use 2oz of chemical. If the pumper does not use enough chemical, refer to the "PUMPER CALIBRATION" section.

* *

New!!!

The Medi-Flow™ now comes equipped(if ordered) with a "Prime/On/Off" button. This will allow you to turn off the injection of chemical, but still use the meter portion of the Medi-Flow™. You can still use the counter/totalizer just as before (if supplied).

To turn the injection **"off"**, simply press the button. Injection will stop. To turn the injection **"on"**, simply press the button. Injection will begin when/if the water is flowing. Also, the valve light will flash one time and the Medi-Flow™ will make a pumping cycle. This will also aid in priming the medicator.

* *

4. SETTING THE PUMPER

Use the adjustment knob to set the pumper to the setting of your desire. The dial is labeled in oz/gal, with increments in 2oz/gal, 1.5oz/gal, 1oz/gal, .5oz/gal. The pumper is factory calibrated and tested under actual operating conditions prior to packaging.

Your Medi-Flow™ should now be fully functional. Enjoy!!!

5. MAINTENANCE & STORAGE

There is very little maintenance required for your Medi-Flow™, however, the sections that follow will cover the part(s) that may need servicing. If a part(s) need

serviced and is not covered below, you should contact you local distributor or H.E. Anderson Company. ***No lubrication is required.*** You should, however, check the calibration of the pumper occasionally. Refer to the "PUMPER CALIBRATION" section.

WARNING: YOUR MEDI-FLOW™ CAN FREEZE. FREEZE DAMAGE IS NOT COVERED UNDER WARRANTY.

If there is a possibility of your water freezing, you should take the necessary precautions to protect the Medi-Flow™ from freezing.

If you remove your Medi-Flow™ from the line for the winter, be sure to drain the water from it. You should also remove the pumper from the medicator and drain the water from it.

6. SERVICING THE PUMPER

In the rear of this manual you should find an exploded view parts drawing for the pumper(Form P20400C) included with your Medi-Flow™. You should refer to the exploded view drawing(s) during the following procedures.

To service the pumper, first turn off the water pressure upstream from the unit.

CHANGING DIAPHRAGM(S)

To change the ***chemical side*** diaphragm(01066), remove the chemical check valves. Use a pan to catch the chemical which might be spilled when the plastic pump head is removed. NOTE: Use precautions when dangerous chemicals are being pumped. Here you should remove the chemical check valves and wash the pump head to remove any remaining chemical.

Remove the screws(01199) and plastic pump head. You may have to insert a thin bladed screwdriver in several places to free the diaphragm from the head and cylinder. Turn the stroke adjusting knob(01347) until the dial reads 1-1/2oz/gal or less. Now unscrew and remove the diaphragm.

When you install the new diaphragm, coat the threads of the threaded stud(01181) with a graphite lubricant to prevent sticking to the aluminum diaphragm insert ***(NOTE: IF THE THREADED STUD COMES OUT IN THE BAD DIAPHRAGM, REMOVE IT AND SCREW IT INTO THE NEW DIAPHRAGM).*** Screw in the new diaphragm until it seats against the water side diaphragm. If the holes in the diaphragm do not line up with the holes in the cylinder(01024), unscrew the diaphragm until the holes line up. Set the dial to the 2oz/gal setting, align the valve holes in the plastic head so the head is vertical, and reinstall the plastic head. After changing a diaphragm you should check the calibration of the pumper and re-calibrate it if necessary.

Before disassembling the pumper, mark the brass flange and cylinder so you can re-assemble them in the same positions. Refer also to the exploded view parts drawing in the rear of this manual for these procedures.

To change the ***water side*** diaphragm(01058), first remove the chemical side diaphragm (See previous paragraphs). Place the small end of the cylinder face down on your work bench. Remove all but two screws, which should be opposite each other. There is a spring with about thirty pounds force pushing the diaphragm against the flange. Carefully follow the following procedure to remove

the flange from the cylinder. Support the flange with your hand as the last screws are removed. This will prevent damage to the threaded holes and also prevent the pieces from flying apart.

To reassemble, place the cylinder, large end up, on your workbench. Place the large end of the spring into the cylinder.

Next, lay the water side diaphragm on the flange. Place all the screws through the flange and diaphragm. Align the marks you made on the cylinder and flange. If you did not mark the pieces, the cylinder has a drain hole which is at the bottom. Match this drain hole to the bottom of the flange. Place the flange/diaphragm assembly onto the spring, push the flange and diaphragm down and start all the screws in their holes. Screw the screws down evenly; take care to be sure the flange goes into position without "cocking". Then tighten all screws securely. Replace the chemical side diaphragm.

To replace the O-ring shaft seal the flange must be removed from the cylinder. Before disassembling the pumper, mark the brass flange and cylinder so you can reassemble them in the same positions.

Carefully remove the screws from around the edge of the flange. Do not leave the cylinder assembly open after the flange has been removed. Place a weight of at least thirty pounds on the exposed diaphragm to hold it in the cylinder. This will prevent damage to the chemical side diaphragm.

Unscrew the screw(01280) holding the pad(01355)to the stroke shaft (3). You may now unscrew the shaft and remove it from the flange. If the seal was leaking, inspect the bore in the flange. If the hole is badly damaged, the flange will have to be replaced. Check the O-ring for tears or nicks. When replacing the O-ring, be very careful when stretching it over the threads. You may find it easier to wrap the threads with tape before sliding the O-ring into position; install the O-ring; then removing the tape.

Lubricate the O-ring, shaft, and hole with a silicone lubricant (such as Dow Corning #111 silicone grease). Reinstall the shaft and replace the pad. Screw the pad retaining screw in just enough to allow the pad to revolve, but have no end play. NOTE: Over tightening the screw may cause the shaft to expand, making it difficult or impossible to adjust the chemical feed . Reassemble the pumper according to the procedure in the last paragraph in the previous section.

7. PUMPER CALIBRATION

RECOMMENDED METHOD

You may check the calibration of your pumpers at any time according to the following simple procedure. You may need to temporarily replace the suction line at the suction valve on the pumper if the foot-valve/strainer has been installed as a bulkhead fitting, or is otherwise inaccessible. If this is necessary, be careful not to inadvertently drain your concentrate tank.

When performing this test you will be inserting and withdrawing the suction line from a graduated cylinder or beaker. For accurate results this must not be done during suction strokes. Therefore, you should always insert or withdraw the suction line just after the pump has wasted water.

With the pumper to be tested fully primed and operational, fill the calibrated beaker with the chemical you are feeding. Submerge the suction line in the beaker and let the pumper make one, or possibly several, suction strokes, depending on the capacity and setting of the pumper. Then withdraw the suction line from the beaker and calculate the amount of solution withdrawn.

Model M101D should draw the following amounts at the specific settings for each suction stroke.

2oz/gal	=	**20mL**
1-1/2oz/gal	=	15mL
1oz/gal	=	**10mL**
0.5oz/gal	=	5mL

If the pumper did not withdraw the correct amount of solution, you may calibrate it according to this simple procedure. Simply adjust the stroke adjustment knob until the pumper withdraws the correct amount.

Then remove the screw which holds the blue dial cover and remove the cover. Carefully lift out the numbered dial and reposition it in the dial holder with the 2oz/gal setting at the top.

Be certain that the teeth on the edge of the numbered dial mesh with the teeth of the gear of the stroke adjustment shaft. If necessary, loosen the screw which holds the dial holder to the flange (the screw is located underneath the dial holder, on the side), and reposition the dial holder so the dial meshes properly.

Once the numbered dial is positioned properly, replace the blue dial scale cover. Carefully line up the line in the window with the 2oz/gal setting and replace the screw which holds the cover in place. This completes the calibration procedure; Readjust the pumper to the proper setting.

ALTERNATE CALIBRATION METHOD

In some cases it may not be practical to calibrate a pumper in the above manner. This would be especially true when hazardous chemicals are being pumped. There is an alternate calibration method which is generally much safer and simpler, although not as accurate as the preceding method. With this second method the pumper may be calibrated when in actual operation. It does not require a graduated cylinder or any handling of chemicals.

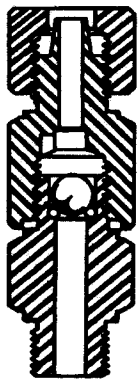
Using this method, you must first turn the pumper completely off. This is done by turning the control knob clockwise as far as possible. This should be done with the pump in actual operation. You will find that the knob turns with great difficulty when the pumper is making a suction stroke. When the pumper is making a pumping stroke the knob will turn relatively easily. Therefore, you should turn the knob only during the pumping strokes, turning it a little at a time, until the knob will turn no farther. If the pump is stroking slowly, you may need only one pumping stroke to turn the pumper completely off.

Once this is done, remove the screw which holds blue dial cover and remove the cover. Carefully lift out the numbered dial and reposition it in the dial holder with the number 0 at the top.

Be certain that the teeth on the edge of the numbered dial mesh with the teeth of the gear of the stroke adjustment shaft. If necessary, loosen the screw which holds

the dial holder to the flange (the screw is located underneath the dial holder, on the side), and reposition the dial holder so the dial gear meshes properly.

Once the numbered dial is positioned properly, replace the blue dial scale cover. Carefully line up the line in the window with the mark at number 0 and replace the screw which holds the cover in place. This completes the calibration procedure; Readjust the pumper to the proper setting.



02857
Discharge
Valve

8. SERVICING THE CHEMICAL VALVES

Every system will have suction(06742) and discharge check(02875) valves which need may need servicing. You also have the priming injector(03830) and foot valve(07288).

Before servicing your chemical check valves we recommend you have replacement ball poppets and O-ring seats available. Poppet kits with all parts necessary for normal servicing are available from your local distributor. The rebuild kit(06735) comes with ceramic(white) poppets and Viton® o-rings. Other options are available upon request.

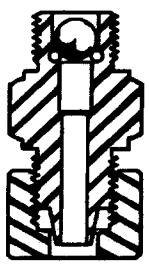
When servicing any of these check valves and fittings you will be disconnecting fittings and tubing filled with the chemical being pumped. There will be a certain amount of spillage. You should observe proper precautions for the chemical being pumped. If you have a plain injector, priming injector, or universal injector, you may service the suction and discharge check valves and universal suction fitting with the system under pressure, but you should turn off the water flow through the feeder. To service the priming injector(03830) you will have to remove pressure from the system (turn off the water upstream of the unit).

Please to refer to Form CV1097A in the rear of this manual for information on individual part numbers and parts assembly.

SUCTION VALVE(06742) & DISCHARGE(02857) VALVE

Remove the suction and discharge check valves from the plastic head. Be careful when unscrewing the suction valve. The ball poppet will be loose in the valve body and may easily be lost. Wash the pumper and valves to remove any remaining chemical.

The check valves are formed by a ball seating on an O-ring. Refer to Form CV1097A to see how the individual valves are assembled. Dis-assemble the valves by unscrewing. Hold the valves with the stamped arrows pointing up so as not to loose the ball poppets. Service the valves one at a time, so the parts will not become mixed up. Remove the ball poppet and inspect it for pitting or cracks. It should be clean and free of any deposit or scale. Wash it again and lay it aside on a clean cloth. Wash the valve parts again, particularly the inside hole and O-ring in the valve body. Under a good light, carefully inspect the O-ring seat. It is in a groove about 3/8" from the end of the valve body. ***Do not use a wire brush or any sharp instrument when cleaning or inspecting the***



06742
Suction
Valve

O-ring. It should also be clean, and free of scale. There should be no visible cracks, tears, or nicks. If nothing is found, test the valve by replacing the ball, and while holding the assembly vertically (arrow up), suck on the inlet (bottom) of the valve. It should seal tightly. If it does not, remove the ball and gently rub the O-ring with a small screwdriver (1/8" blade). Be sure the blade has no sharp edges. Rub the O-ring while rotating the valve body. Replace the ball and test again. If the ball still does not seal, replace the O- ring.

The O-ring will generally be ruined when it is removed, so be sure you have a replacement O-ring before removing the old. Use a safety pin or similar tool to remove the O-ring. Spear the O-ring, but be careful not to push the point clear through the O-ring. If you do, the valve body will be ruined. Carefully pry the O-ring out of the groove. Use a small screwdriver to lift it out of the body. Wash the body and inspect the groove for scratches. Inspect the O-ring again. Rub the surface with your finger. If color rubs off, chemical is attacking the O-ring, and you should also inspect the chemical side diaphragm for chemical attack.

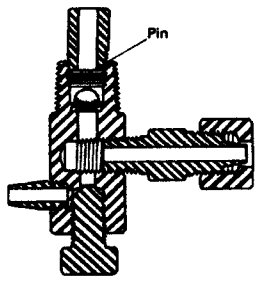
Install the new O-ring by inserting it sideways into the hole. Use the screwdriver blade to gently place one side of the O-ring into the groove. Gently force the O-ring into the groove by rotating the body and gently pushing with the screwdriver. When the O-ring is in, rub it with the screwdriver blade to remove any twists in it. Gently burnish the O-ring with the blade while you rotate the valve body.

Now replace the ball and test again. You are now ready to reassemble the valve and reinstall it in the pumper. Be sure the arrows point vertically upwards when the valve is installed.

FOOT VALVE(07288)
The foot valve uses the same type ball poppet and O-ring seat as the suction and discharge check valves. It is serviced similarly. You may need to clean the screen filter prior to re-installing.

PRIMING INJECTOR(03830)
To service the priming injector you will have to remove pressure from the system (turn off the water upstream of the unit).

The priming injector has a port which may be opened to atmosphere for easy priming. The ball and seat should be serviced similarly to the suction and discharge check valves. ***When reassembling the priming injector, screw the needle in only hand tight.*** Also be certain that the pin is present in the nozzle. If not present, the ball will be pushed into the nozzle, preventing the Medi-Flow™ Medicator from working.



03830 Priming Valve

9. SERVICING THE PILOT VALVE (P/N 19054)

The pilot valve included with your Medi-Flow™ should need very little service. If, after troubleshooting, it is determined that the pilot valve is at fault, please refer to Form PV0400C in the rear of this manual.

10. TO CONTACT US

If a need or problem arises concerning your Medi-Flow™ Medicator, we urge you

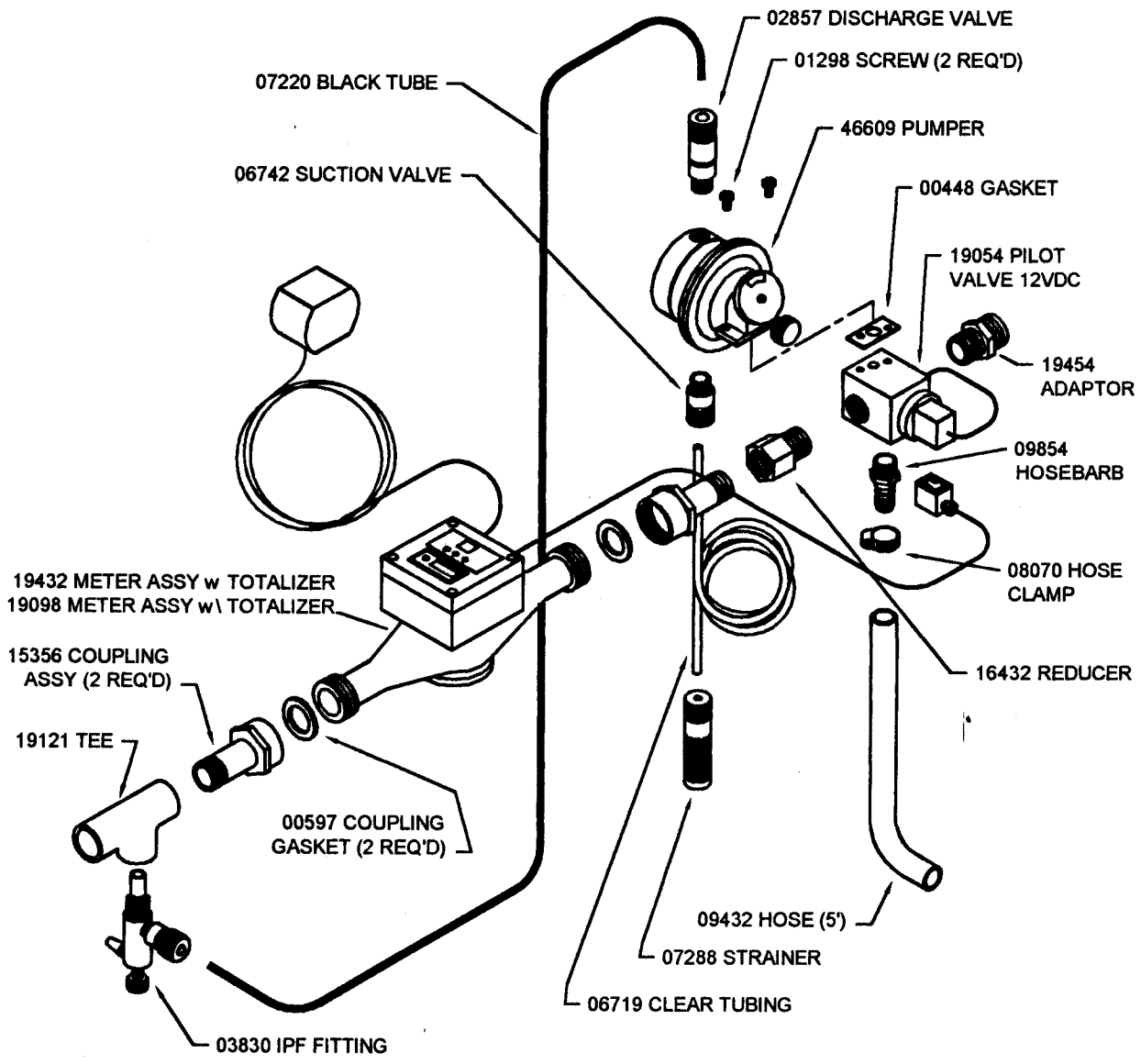
to contact your local distributor. If you do need to contact H.E. Anderson Company, we have provided that information below.

H.E. Anderson Company
2100 Anderson Drive
Muskogee, OK 74403
Phone: 800-331-9620
Fax: 918-682-3342
Web: heanderson.com
E-mail: sales@heanderson.com

Medi-Flow Complete

Model M101D & M101

For use with units serial number AD-10 and newer

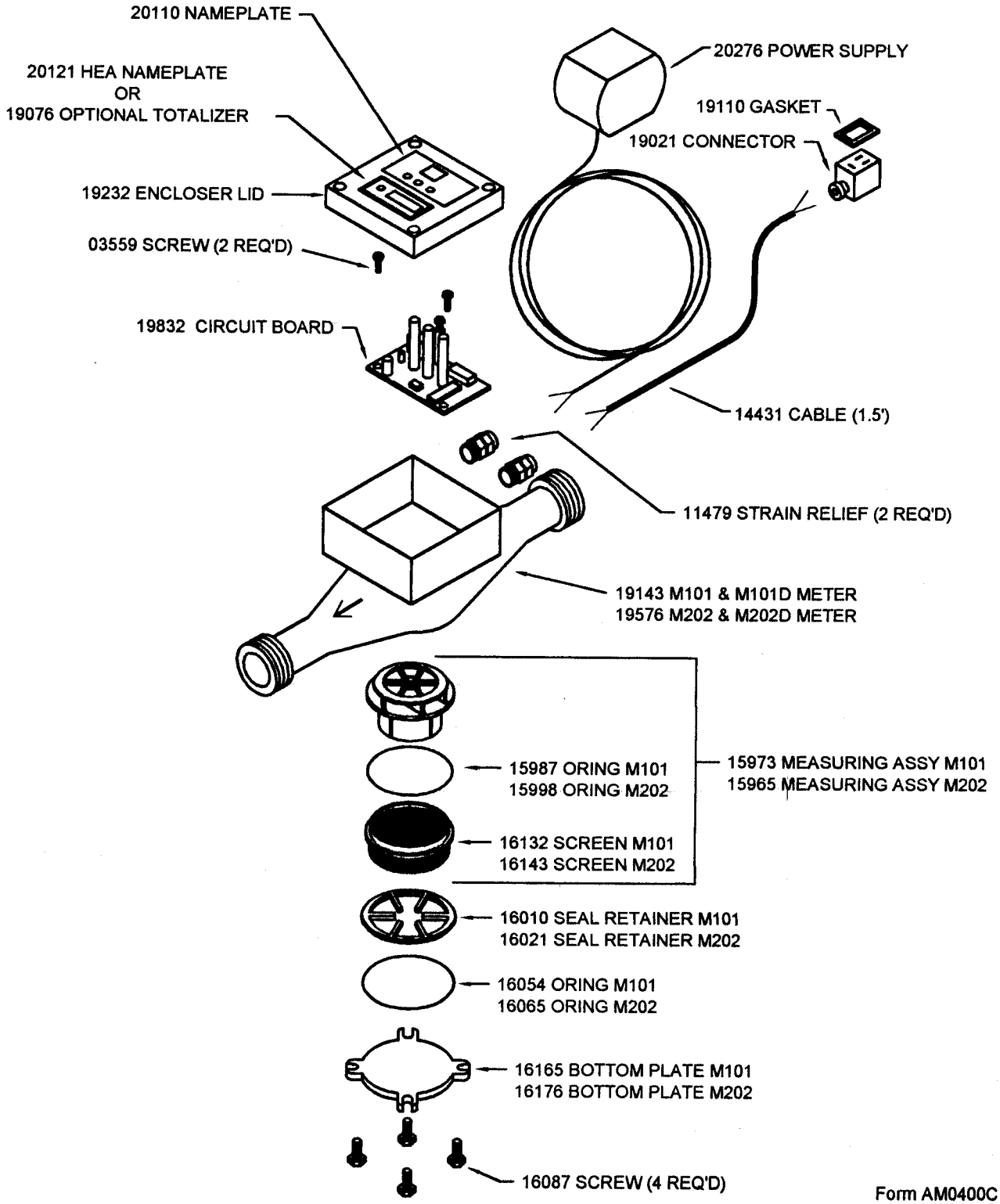


Form MC0400C

Medicator Flow Meters

Part Numbers

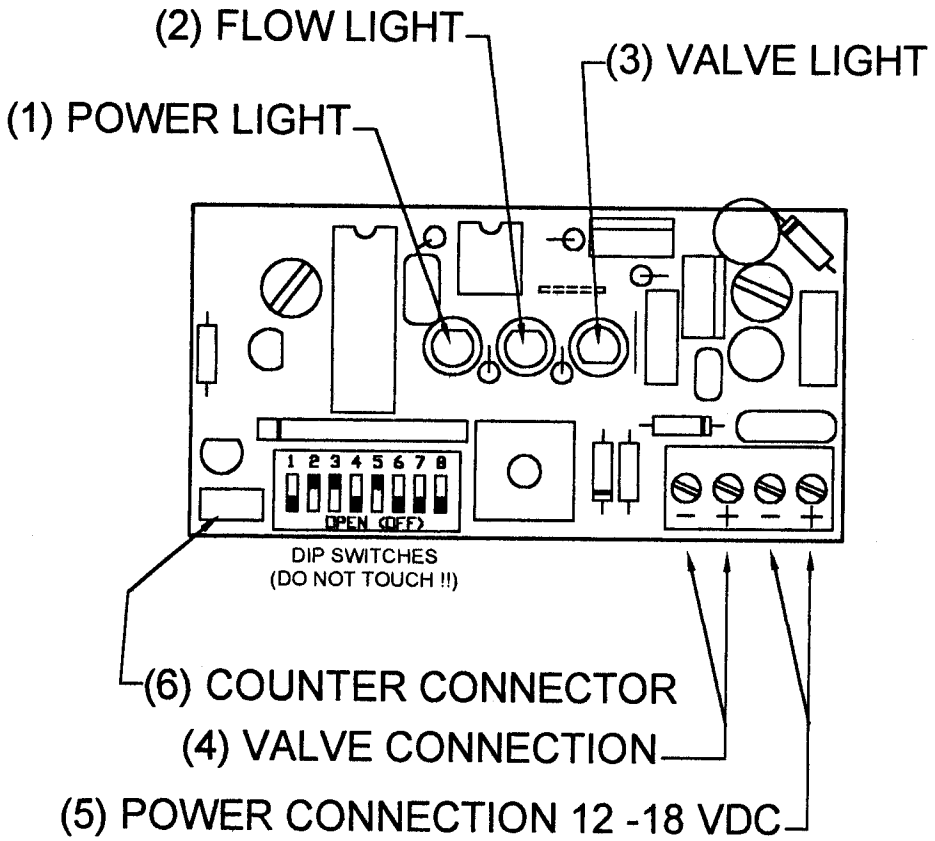
M101= 19432 M101D= 19098
M202= 20287 M202D= 20298



Form AM0400C

19832 PC Board

12 VOLT DC



(1) Power Light (RED) - This light should be lit when power is supplied to the Medi-Flow.

(2) Flow Light (YELLOW) - This light should flash/flicker when water is flowing, light may be on or off.

(3) Valve Light (GREEN) - This light should turn on when pilot valve is energized.

(4) Valve Connection - Connect pilot valve cable (p/n 14655) to this terminal.
(makes no difference how you connect wires).

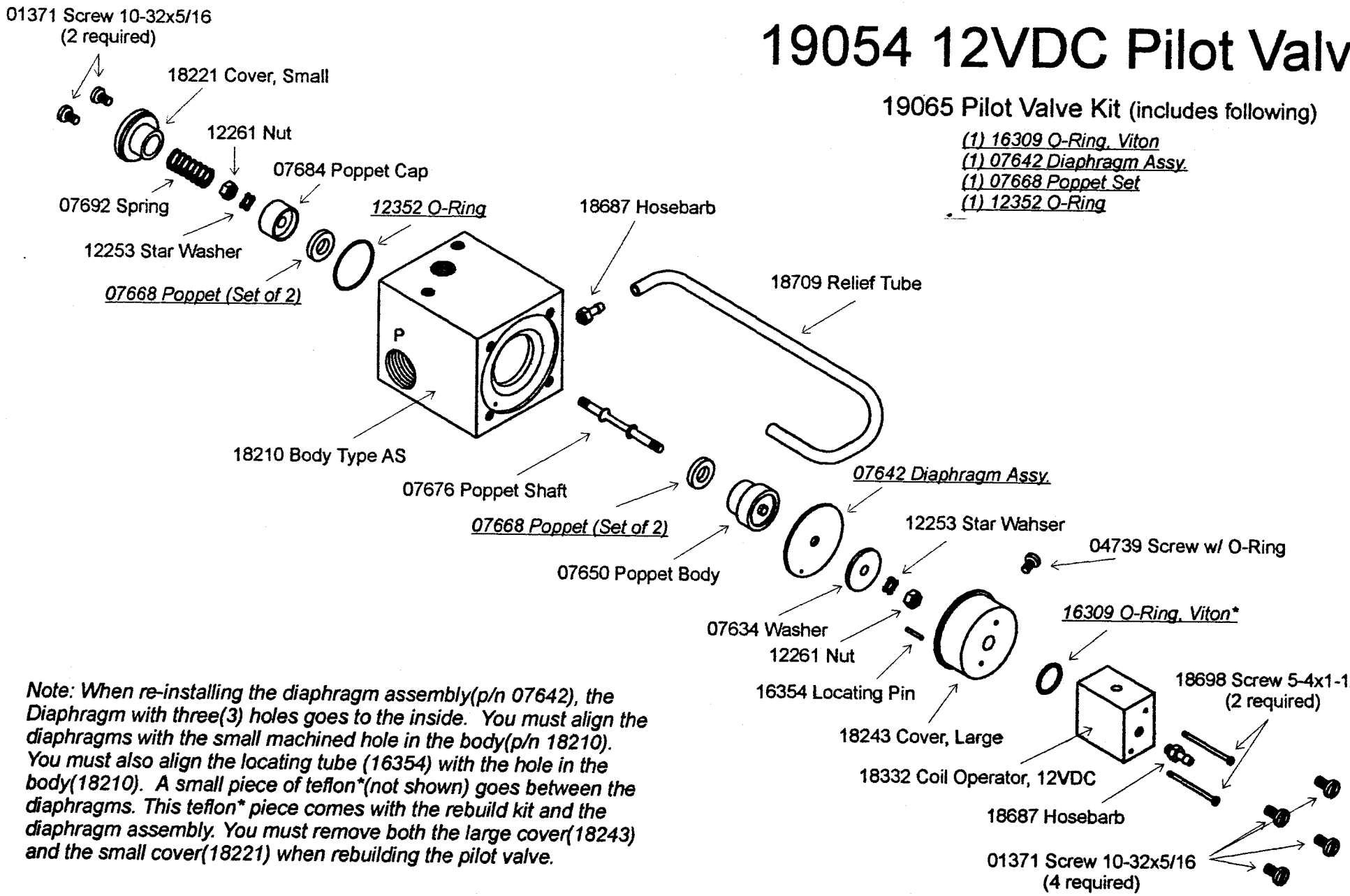
(5) Power Connection - Connect 12 VDC to this terminal **(be sure to connect the plus/minus correctly).**

(6) Counter/Totalizer Connection (optional) - Plug counter/totalizer to this connection.

19054 12VDC Pilot Valve

19065 Pilot Valve Kit (includes following)

- *(1) 16309 O-Ring, Viton*
- *(1) 07642 Diaphragm Assy.*
- *(1) 07668 Poppet Set*
- *(1) 12352 O-Ring*



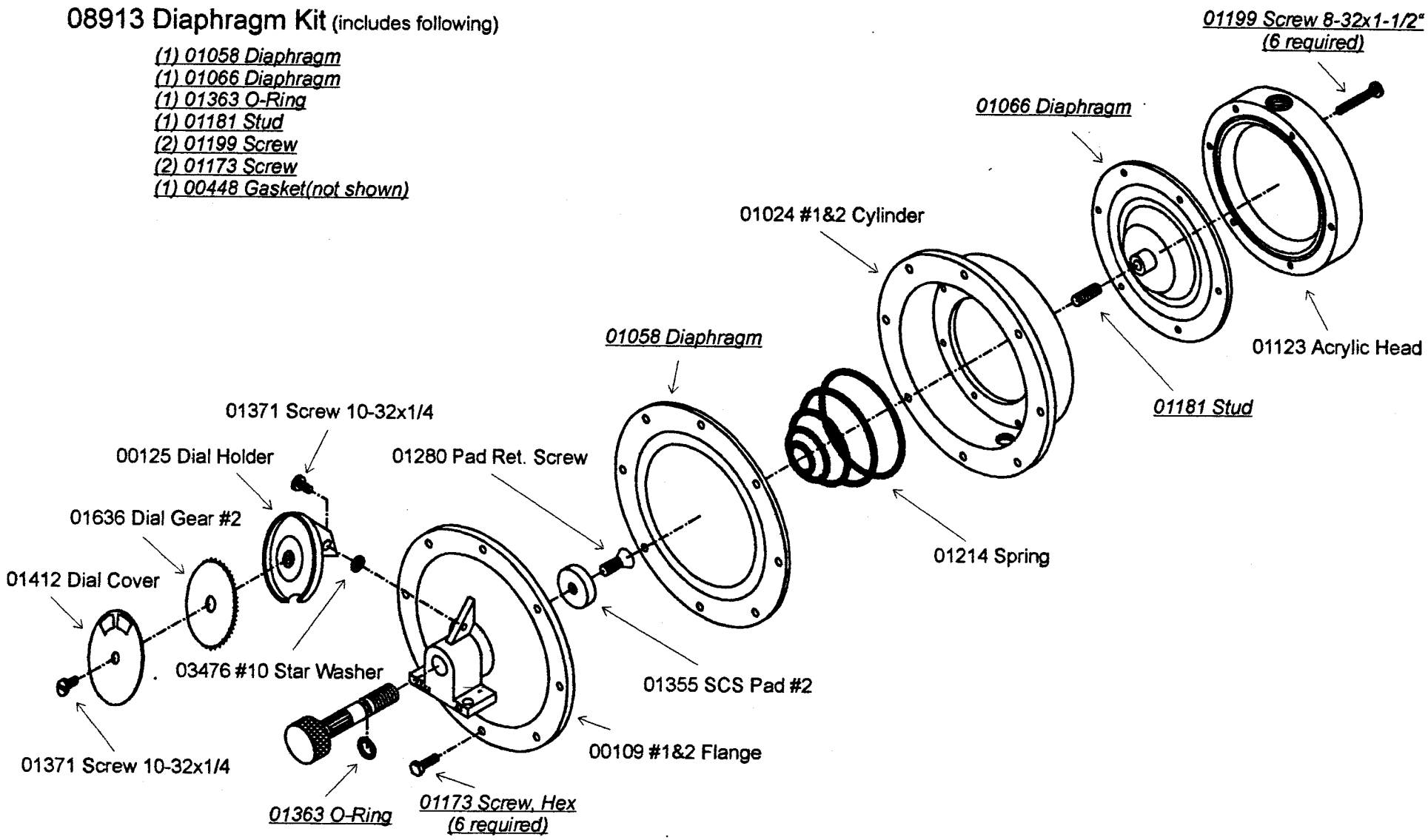
Note: When re-installing the diaphragm assembly(p/n 07642), the Diaphragm with three(3) holes goes to the inside. You must align the diaphragms with the small machined hole in the body(p/n 18210). You must also align the locating tube (16354) with the hole in the body(18210). A small piece of teflon(not shown) goes between the diaphragms. This teflon* piece comes with the rebuild kit and the diaphragm assembly. You must remove both the large cover(18243) and the small cover(18221) when rebuilding the pilot valve.*

** Registerd trademark of DuPont.*

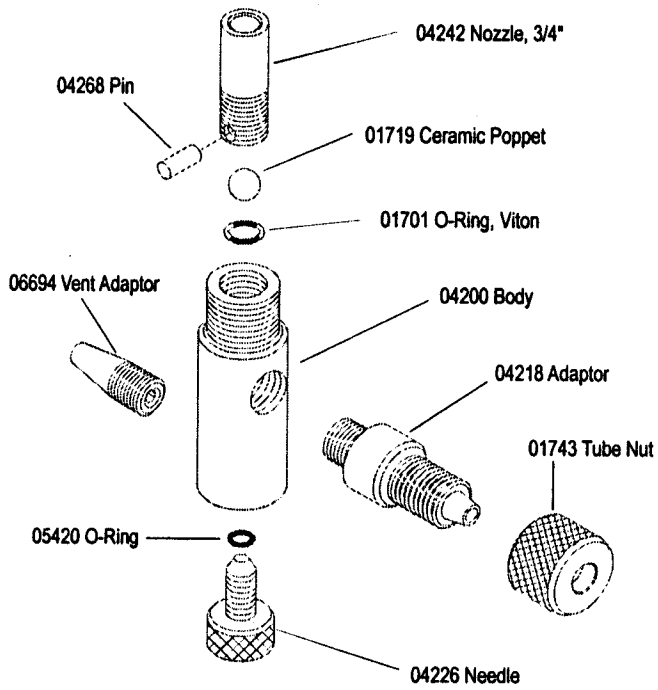
46609 P2 Pumper Assy less Valves & Tubing

08913 Diaphragm Kit (includes following)

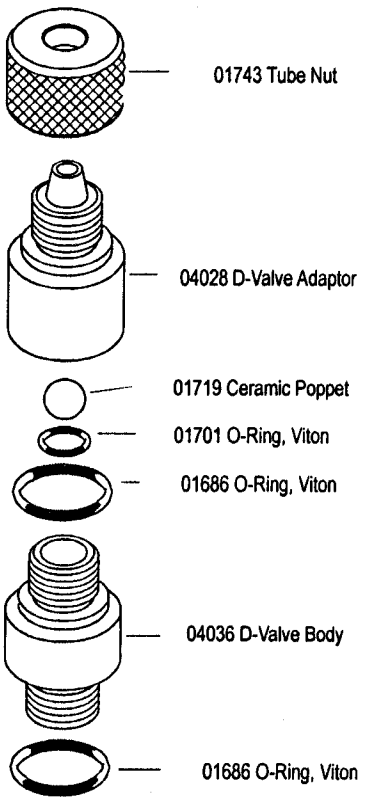
- *(1) 01058 Diaphragm*
- *(1) 01066 Diaphragm*
- *(1) 01363 O-Ring*
- *(1) 01181 Stud*
- *(2) 01199 Screw*
- *(2) 01173 Screw*
- *(1) 00448 Gasket(not shown)*



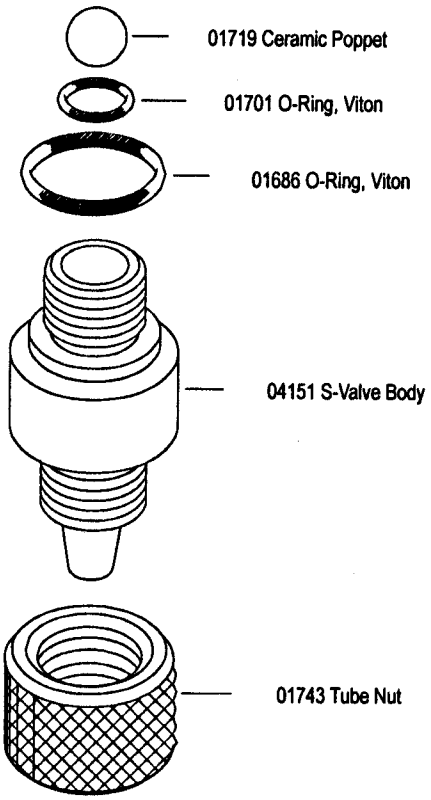
Chemical Valves



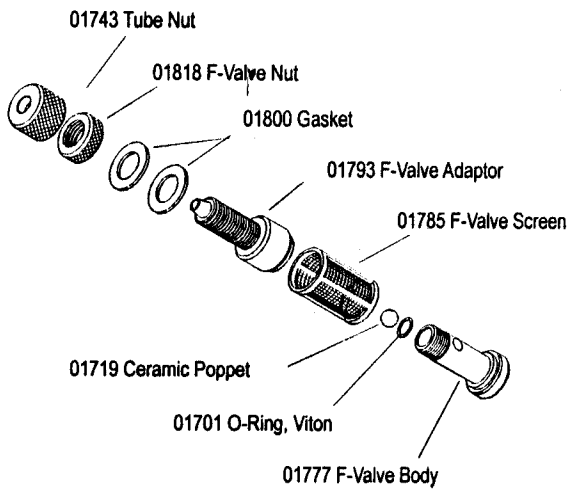
03830 Priming Injector Complete



02857 Discharge Valve Complete



06742 Suction Valve Complete

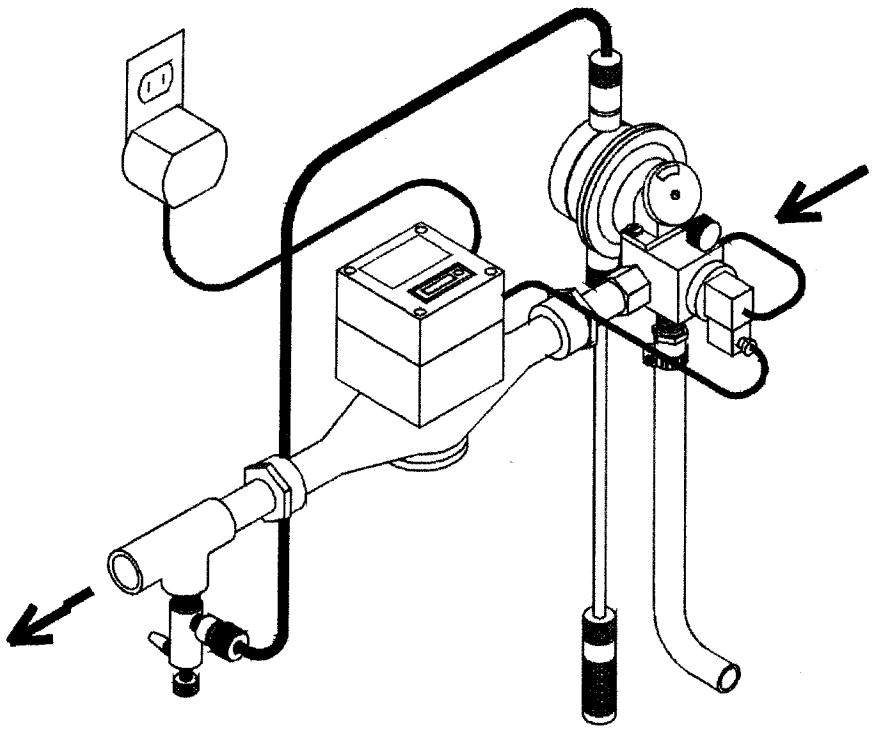


07288 Foot Valve Complete

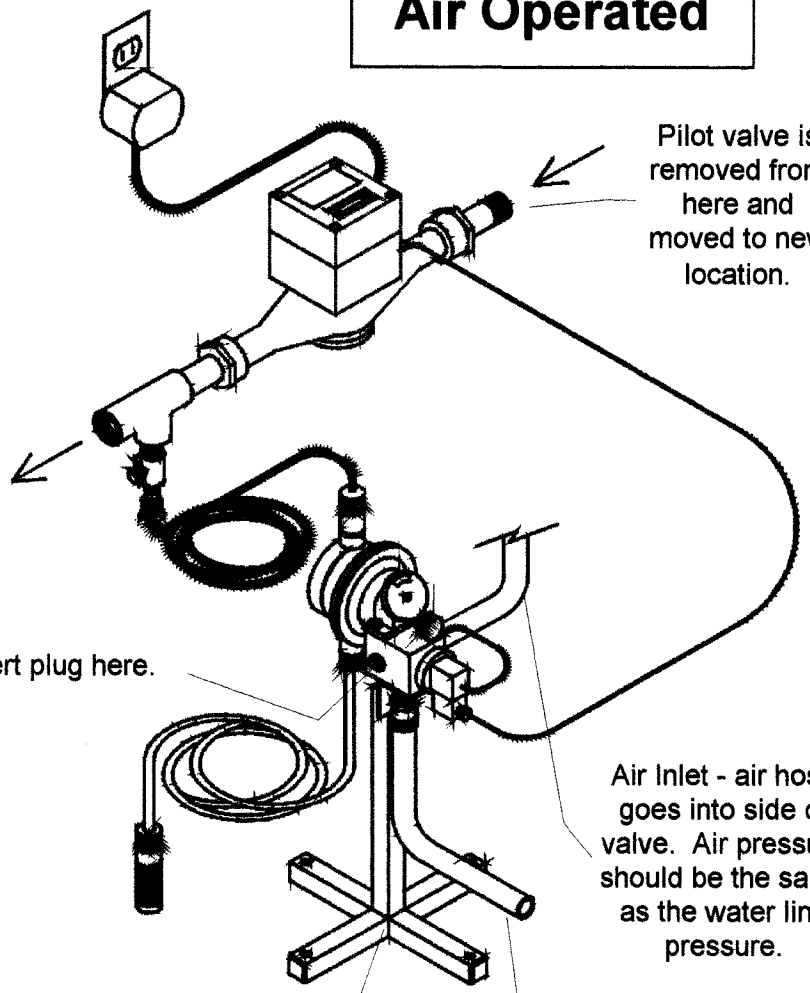
H.E. Anderson Co.

MEDI-FLOW™ TYPICAL INSTALLATION

Water Operated



Air Operated



H.E. ANDERSON COMPANY LIMITED WARRANTY

WHAT IS COVERED

The H.E. Anderson Company of Muskogee, Oklahoma, will make any necessary repairs and/or replace any parts of this H.E. Anderson Company product made necessary because of defects in materials or workmanship for fifteen months from date of manufacture. Warranty repairs and/or replacements will be performed without charge to the owner by H.E. Anderson Company within a reasonable time after prepaid delivery of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.

WHAT IS NOT COVERED

This warranty specifically excludes failure of any parts or materials caused by chemical attack or damage caused by operation above rated capacity or pressure. Further, this warranty does not cover wear or failure caused by sand or other foreign materials which may be found in water that is passed through our products, or damage caused by freezing or exposure to water temperatures above 60 °C (140 °F).

This warranty does not cover damage caused by failure to follow prescribed installation instructions and limitations issued by H.E. Anderson Company. In addition, this warranty does not cover service adjustments, repairs, or replacements caused by misuse, negligence, alteration, accident, or lack of specified maintenance.

This warranty does not cover components used by, but not manufactured by H.E. Anderson Company, in the manufacture of our products except to the extent of said component manufacturer's warranty.

This warranty specifically excludes liability for consequential damages or for charges for labor or expense in making repairs or adjustments, or losses of time or inconvenience.

This warranty gives you specific legal rights and you may also have other legal rights which may vary from state to state. H.E. Anderson Company does not authorize any person to create for it any other obligation or liability in connection with these products. ANY IMPLIED WARRANTY APPLICABLE TO THESE PRODUCTS IS LIMITED TO THE DURATION OF THIS WARRANTY. H.E. Anderson Company shall not be liable for consequential damages resulting from breach of this written warranty.

NOTE: Some states do not allow limitation on how long an implied warranty will last or the exclusion of limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

1) Promptly notify the consumer adviser at H.E. Anderson Company by telephone at 800-331-9620 or 918-687-4426.

2) Confirm the report in writing (or via FAX at 918-682-3342) to the H.E. Anderson Company, stating the circumstances surrounding the problem.

PURCHASER'S OBLIGATION

a) Purchaser must give H.E. Anderson Company immediate written notice on discovery of defect.

b) Purchaser must pay for shipment of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.