

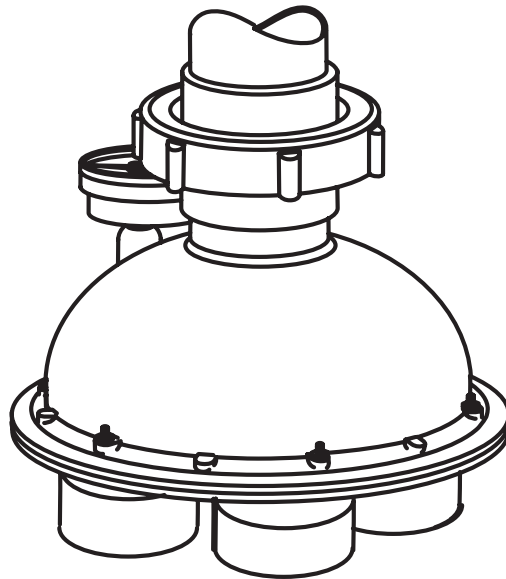


CARETAKER™
5-port valve
the workhorse



Installation and Maintenance Guide

SERIAL NUMBER



⚠ WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exists. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation will void the warranty.

Caretaker

66 East 3335 South, Salt Lake City, UT 84115
855.280.6465 toll-free | 801.484.4449 phone | 801.906.6701 fax |
caretaker.custsupport@zodiac.com
www.caretakersystem.com

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Important Safety Information

READ AND FOLLOW ALL INSTRUCTIONS.

WARNING

Read these instructions completely before starting the procedures. If these instructions are not followed exactly, a fire or electric shock could result, causing property damage, personal injury, and/or death.

WARNING

This product must be installed and serviced by authorized personnel, qualified in pool/spa installation. Improper installation and/or operation can create an unwanted electrical hazard which can cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

WARNING

Installation of this equipment should be performed by a licensed electrician and conform to the National Electrical Code® (NEC)®. All applicable local installation codes and regulations must be followed.

WARNING

This manual contains important information about the installation, operation, and safe use of this product. This information should be given to the owner/operator of this equipment.

WARNING

To reduce the risk of electrical shock:

- Install all electrical equipment at least 5 feet (1.5 m) from inside wall of pool or spa.
- Disconnect power before servicing this equipment.

WARNING

To reduce the risk of injury, do not allow children to handle this equipment unless they are closely supervised.

CAUTION

- Use supply wires suitable for 140-167°F (60-75° C).
- Connect only to a circuit protected by a Class A ground fault circuit interrupter (GFCI).
- Use copper conductors only.

To ensure complete cleaning and to qualify for the 99% cleaning guarantee, the pool builder must fax or email a Design Fact Sheet along with a scaled pool plan for FREE In-Floor Design Service prior to plumbing the pool.

Email: design@zodiac.com
Fax: (801)-906-6701

If the pool design or dimensions change during excavation, a new design plan must be drawn, or the cleaning guarantee will be void.

Install the valve above ground and the finished pool water level. **Do not bury valve after installation.**

Install cleaning heads and nozzles according to the Design Plan.

If pool includes an elevated spa, install a check valve on the line feeding the spa heads to avoid spa draining. Install other check valves (as normal) to avoid spa return jets and suction lines from draining.

SAVE THESE INSTRUCTIONS.

For Customer Service or Support

To contact Caretaker: Customer Service
66 East 3335 South
Salt Lake City, UT 84115

toll-free: 855.280.6465
phone: 801.484.4449
email: caretaker.custsupport@zodiac.com

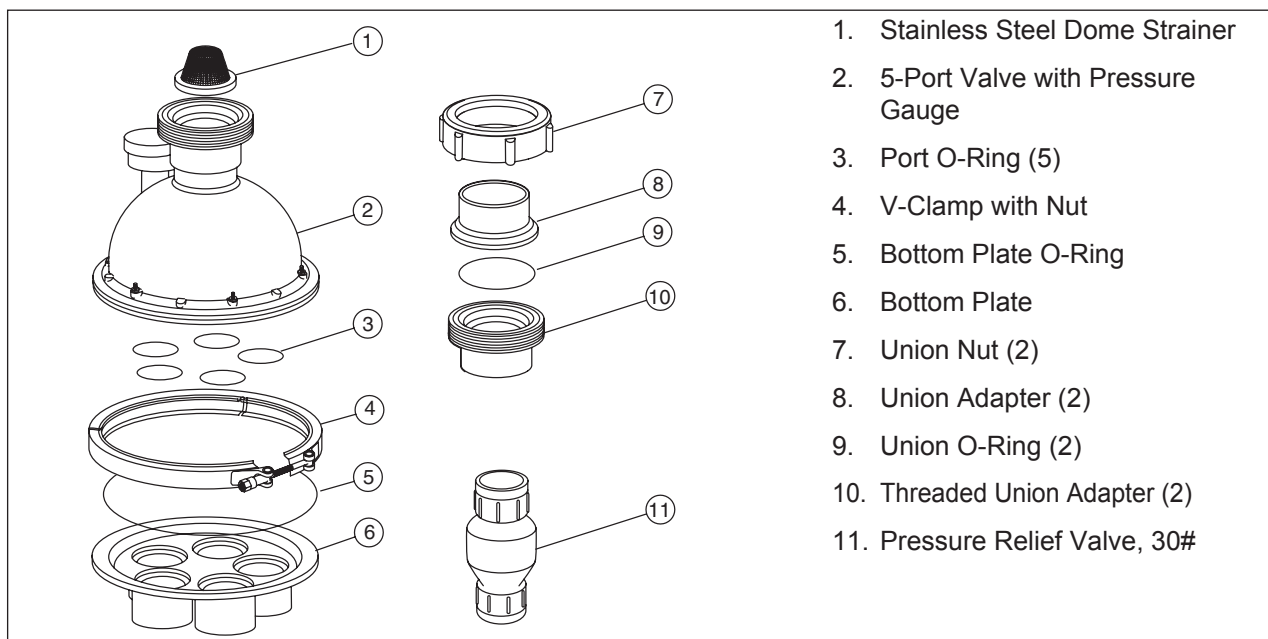
www.caretakersystem.com

Introduction

The 5-Port is a hydraulically-driven, 5-port water valve for Caretaker™ in-floor pool cleaning systems. The 5-port valve provides dependable and efficient in-floor cleaning. Ideal for smaller pools or spas, the 5-Port valve maximizes power to give your pool a robust and thorough cleaning.

Installation of this equipment should be performed by a licensed electrician and should comply with all national electric code guidelines (NEC®, Australian, etc.) and all applicable local laws, ordinances, codes, and regulations. Failure to follow recommended installation methods and maintenance procedures could cause damage to pool equipment and/or personal injury, and may void the warranty.

Components



Installation

1

Site Planning

Verify that the excavated pool matches the Zodiac Pool Systems, Inc. ("Zodiac") certified pool plan. Check the break, width, depth, and designated step/bench locations. Zodiac® design dimensions are from **finished** pool, not excavation. **If any dimensions have changed, a new plan must be drawn to ensure cleaning and warranty.**

Position the valve as close as possible to the swimming pool or water feature to reduce piping and improve performance.

Install the valve so that the bottom housing and outlet ports are above ground and the finished pool water level. If the valve must be installed below water level, check valves or manual valves on the inlet and outlet ports are required to prevent flooding of the valve.

Lay out system so feed pipes enter the pool in the center of the wall closest to the pool equipment and valve. Use a check valve on the feed line in elevated spas to prevent draining.

Follow the design plan to position and stake the cleaning head locations. Each head has a designated nozzle that has a precise cleaning radius (see Figure 1). Perimeter heads have a 1 ft. (0.3 m) overlap.

Flare steps and benches to ensure debris does not get cornered (see Figure 2). Heads should be positioned 2 in. (5.1 cm) from the outer edge on steps and benches.

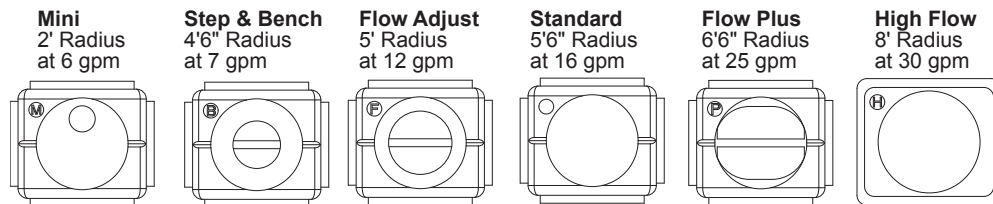


Figure 1. Nozzle options

2

Plumbing the System

Feed Lines for Cleaning Heads

The Zodiac certified pool plan indicates which cleaning heads will be plumbed together to form a bank. Run all feed lines to the top of the bond beam to facilitate easy valve hookup. Number the lines according to the design plan (see Figure 2).

- Excavate a niche in pool wall, 6" x 24" (15.2 cm x 61.0 cm) down to the pool floor.
- Make line trench depth sufficient to cover all pipes with 6" (15 cm) of soil.
- Do not cross lines in floor.
- Use 2" (5.1 cm) Schedule 40 PVC pipe.
- Use 45° and sweep elbows where possible to preserve flow.

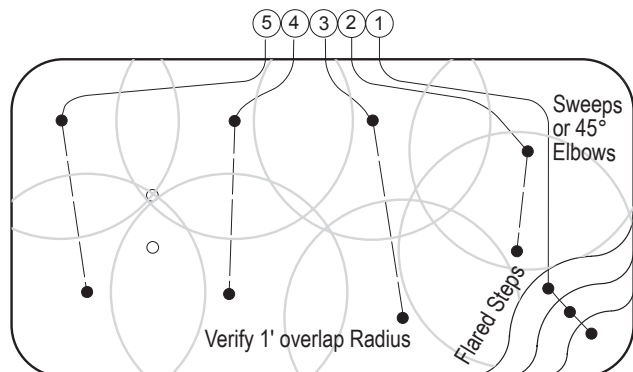


Figure 2. Plumbing Design Plan

For Vinyl Liner Pools:

- Stake but do not plumb lines until walls are set; plumbing lines are fed under walls.
- Vinyl collars are not adjustable, stub-ups **must be** perpendicular to finished pool floor.
- Dig trenches 8 in. (20.3 cm) below excavation grade to accommodate setting of fittings.

Cleaning Head Risers

The cleaning head collars require either 2 1/2" (6.35 cm) Schedule 40 PVC (part #5-9-150) or 2" class 200 (stub-up) risers (part #WK000001). Use the prefabricated stub-ups that glue directly into the 2" (5.1 cm) tee, 90-degree elbow, or coupling on the feed lines (see Figure 3).

- Position stub-up perpendicular (90°) to the slope of the finished pool floor.
- Stub-ups must be 6" (15.2 cm) above finished elevation.
- During gunite application, leave a 1" (2.5 cm) deep x 1" (2.5 cm) wide well around each stub-up.

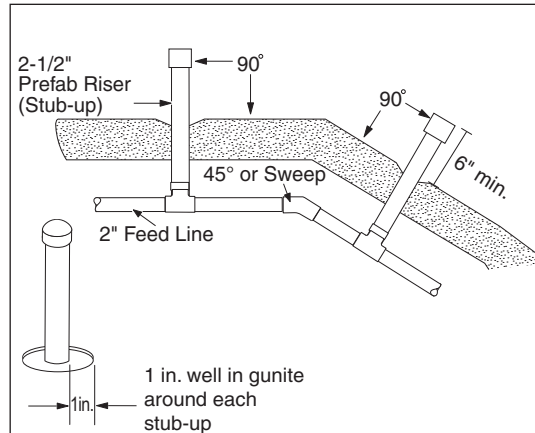


Figure 3. Cleaning Head Risers

Note: If 2" schedule 40 stub-ups are used, pipe reamer (part # 4-17-2) is required.

5-Port Valve

The valve is tested and sealed at the factory, ready for installation at startup without adjustment. For setup and pressure testing during the construction phase, install the non-functioning test housing (5-Port Test Housing, part #4-9-2002 purchased separately) or remove the plungers from the valve.

Plumb the pressure relief valve in a bypass line off the pool return line. Use two 2-way valves (one on return line, one on valve feed line) to control flow.

Use the second union to install a removable section of pipe immediately before the valve to provide service access to the valve dome strainer (see Figure 4).

Position the large o-ring in the bottom plate, align the guide pin and use the V-clamp to attach the plate to the test housing. Connect the water source from the pool pump to the valve inlet. **Note: Tighten by hand only.** Tighten the V-clamp nut until ends are about 3/4" (1.9 cm) apart.

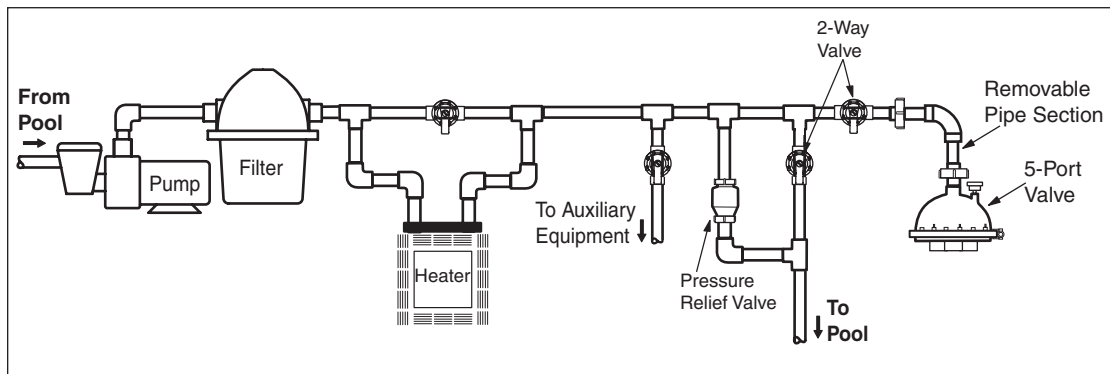


Figure 4. Example of a Plumbing Setup

Discharge Lines

The distribution system is designed to rotate from the shallow end to the deep end; pushing debris to the drain. Port 1 should always be the step or bench port, followed by the shallow bank, etc. Looking down on the valve, it rotates clockwise. If a spa is included, it will require a dedicated line from the valve. Follow the design plan to install the lines in the correct order (See Figure 5).

- The bottom plate of the valve must be primed heavily before gluing.
- Use heavy bodied PVC glue to connect the PVC pipe to the valve housing. **CAUTION: Do not get glue inside the housing as this will void the warranty.**
- Use a 3 in. (7.6 cm) stagger when cutting pipes to provide enough clearance for the elbows.
- Install the discharge lines from the valve in a stacked or flat configuration. **CAUTION: Ensure pipes do not touch each other.**
- Install all lines with a minimum of 6" (15.2 cm) cover or in accordance with local codes.
- If all outlet ports on the valve are not needed, **double-port** the line by tying the unused port into an active port. Customarily, **double-port** lines to the hardest-to-clean area. Refer to the design plan for the proper connections.

CAUTION: When double porting, skip a port (e.g. tie port #2 to port #4, not #3) as shown in Figure 6. Never plumb a port to the port next to it.

- If a port is used as a return line, install an eyeball fitting at the pool wall to create back pressure on the line and install a check valve.

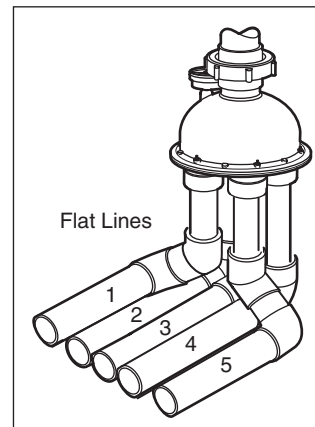


Figure 5. Flat Configuration of Valve Discharge Lines

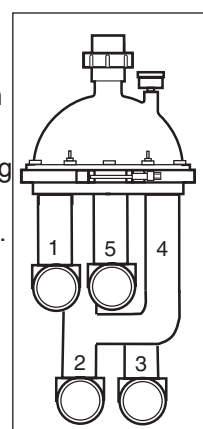


Figure 6. Double-Ported Stacked Lines

Auxiliary Equipment

Heaters: To compensate for heater system pressure drops, plumb heaters in a bypass line before the water valve, even if the heater has an internal bypass. Perform a temperature rise test to determine where to set the bypass valve (see Figure 7). Ensure proper water flow can be reached.

Chlorinators: In-floor systems can be used with erosion feeders, ozone generators, and in-line salt-chlorine generators. Consult manufacturers' instructions for proper installation to protect the water valve and other pool equipment from high concentrations of chlorine or chlorine gas.

Automatic Pool Cleaners: When using an automatic pool cleaner with the in-floor system, plumb the dedicated cleaner line (booster pump if applicable) before the valve (see Figure 7).

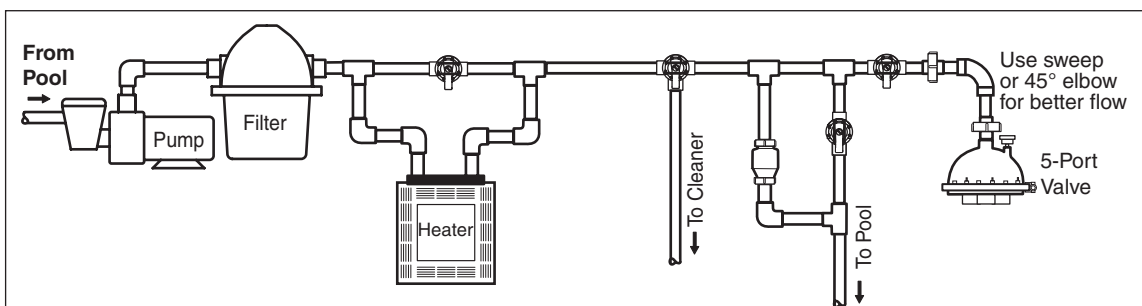


Figure 7. Example of a Plumbing Setup with Auxiliary Equipment

Pressure Testing

Before the pressure test, isolate the plumbing so that the filter, pump, and heater are not subjected to the pressure test. Pressure-test the system at a minimum of 35 psi for 24-48 hours or as local code requires. Keep the water valve secure and under pressure throughout the construction process. When all connections are complete and it is clear that the system is holding pressure, backfill, tamp and level all trenches.

When performing hydrostatic pressure tests or when testing for external leaks of the completed filtration and plumbing system, ensure that the maximum pressure the system is subjected to **does not exceed the maximum working pressure of any of the components within the system.**

⚠ WARNING

Pressure testing applies only to the plumbing and not to the pool equipment such as the filters, pumps, and heaters. To minimize risk of severe injury or death the filters, pumps, and heaters should not be subjected to the piping pressurization test. Refer to the manufacturer's instructions for the pumps, filters, and heaters for instructions regarding the maximum pressures the pool equipment can be subjected to.

3

Preparing the System

Cut Stub-ups

1. Verify that the system is holding pressure (minimum of 35 psi), then relieve system pressure.
2. Cut each stub-up
 - **For 2" stub-up:** Cut $\frac{1}{2}$ " (1.3 cm) above the cement.
 - **For 2-1/2" stub-up:** Cut flush with the cement **Tip: Use the UltraFlex® Collar Template (part #1-17-7) (see Figure 8).**
3. **Use a sander/grinder to sand each stub-up smooth and level** with the shell finish to ensure proper glue adhesion with collar setting. Insert test plug in each stub-up.
4. Attach a blower assembly unit (blower, check valve, air/water supply, and connectors) directly to the union at the top of the 5-Port valve. For technical assistance, contact Caretaker for assembly instructions. Turn on blower and water supply to fill the lines.
5. Starting at the cleaning head farthest from the valve, remove test plug and flush the pipe, blocking and releasing pressure several times to ensure a clear line. Replace test plug and repeat for each riser.

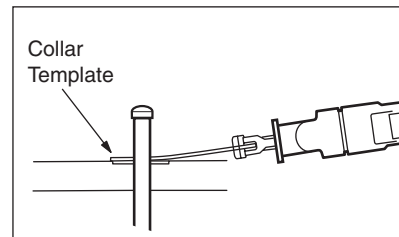


Figure 8. Riser Installation

For Vinyl Liner Pools:

Set collar fittings before clearing lines.

1. Cut pipe stub-up flush with the pool floor. Then use an inside pipe cutter to cut it again $1 \frac{7}{8}$ in. (4.8 cm) lower than the floor level.
2. **Use ABS to PVC glue to secure the collar fitting. (Primer can be used on the pipe but not the fitting. Use glue on both.)** Insert collar to a full stop to ensure proper height.
3. Excavate an area (12 in. (30.5 cm) around head and 8 in. (20.3 cm) below excavated floor) and fill with concrete to form a "thrust block" to eliminate movement of the cleaning head.
4. Clear lines and insert test plugs limiting water use as there is no solid pool bottom.

Install Collars

When the pool interior is completely clean and ready for the final finish application, install the collars (see Figure 9).

1. Set blue protective caps in collars.
2. Use heavy bodied PVC glue to secure the cleaning collars. (Primer can be used on the stub-ups but not the collars. **Use glue on both.**)
3. Push collar firmly into pipe with a 1/4 turn.
4. Ensure collar is perpendicular with pool shell; you can rotate the Ultraflex® collar up to 10°.

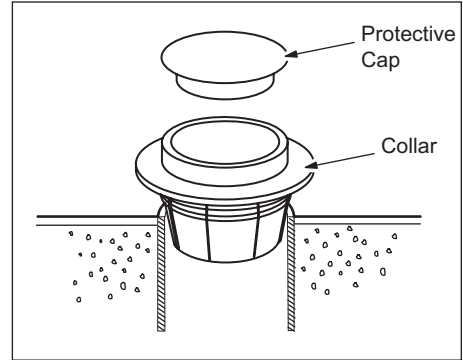


Figure 9. Install Collar

For Vinyl Liner Pools:

Pool liner must be in final position before installing collars and cleaning heads (see Figure 10).

1. Press locking ring firmly into place in groove on collar fitting. **Installation Tip:** Turn collar upside down and use as a tool to press ring into place.
2. Use a razor knife to cut liner inside the locking ring, leaving at least a 1/4 in. (0.6 cm) edge around the ring perimeter.
3. Tighten the collar into the collar fitting, turning clockwise until the collar lip fits snugly against locking ring.
4. Insert Metal Combination Tool (part #3-17-7) into collar and rotate clockwise until collar is firmly seated.

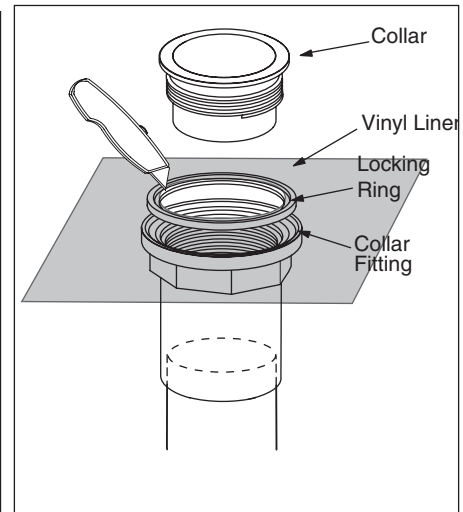


Figure 10. Collar Installation in a Vinyl Liner Pool

Install Functional Valve

Remove the builder test housing and install the functional 5-Port valve (see Figure 11).

1. Unscrew the two (2) union nuts and remove the pipe section located in front of the water valve. (see Figure 4).
2. Use a 7/16 in. deep socket with a ratchet or a 7/16 in. wrench to loosen and remove the V-clamp. Remove the test housing.
3. Install the five (5) small o-rings, wet them if necessary to help them stick but do not lubricate. Check positioning of large o-ring in groove of bottom plate.
4. Align guide pin, set the valve into the bottom plate, and re-install V-clamp by tightening until band ends are about 3/4 in. (1.9 cm) apart (tap on the perimeter periodically to ensure equal tension).
5. Position dome strainer (**cone-up**) and reconnect valve at union. Replace connecting pipe sections and tighten unions securely. **Note: Tighten by hand only.**
6. Turn on the system and check for leaks.

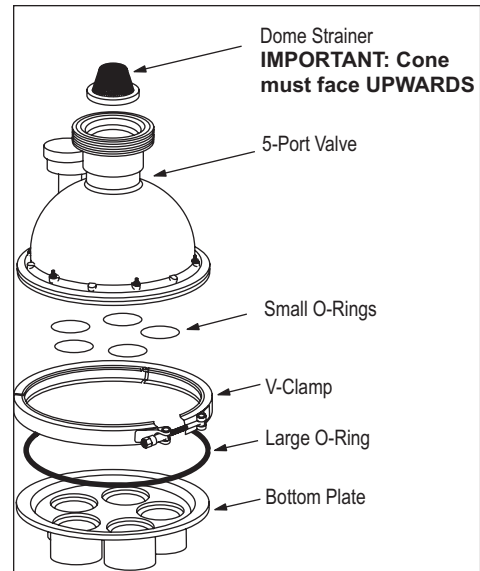


Figure 11. Installing the Functional Valve

4

Starting the System

Before initiating the system, open a discharge line before the valve and flush the pool pump and filtration system.

- Clear debris from all filters and screens.
- Remove the protective caps from the collars.
- **Run the in-floor system without cleaning heads installed for 24 hours to ensure the lines are clean.**

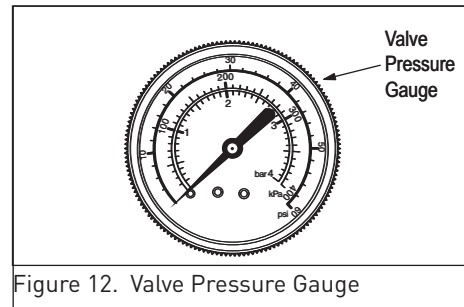


Figure 12. Valve Pressure Gauge

5

Install the Cleaning Heads

1. Install the nozzles into the cleaning head. Refer to the design plan to verify nozzle size.
2. Attach the Head Removal Tool (part #3-17-8) to the pool pole.
3. Snap tool into the head. Set head in collar; make sure the head is completely in the collar.
4. Turn clockwise (about 1/4 turn) to lock the head into position.
5. Lift straight up to release head from the removal tool.
6. Run the system for a complete cycle to confirm that all cleaning banks operate and that each head advances during pop-up and retraction.
7. Verify proper water pressure at the gauge on the water valve. Optimum level is 14-22 psi (97 - 152 kPa).

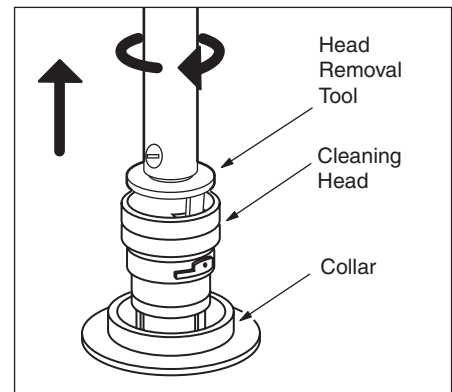


Figure 13. Installing Cleaning Heads

Operation and Routine Maintenance

The Caretaker cleaning heads are designed to operate at a specific gallonage and pressure. To maintain flow through the heads, run the system whenever the pump is on.

Cleaning times will vary according to application and environment. To determine the optimum cleaning time, run the system 24 hours a day to start. Reduce run times by 2 hours every 2 days until minimum cleaning time is determined. Six hours a day is recommended.

Cleaning the Filtration System

For optimum cleaning efficiency, routinely clean the pool pump basket, skimmer and filter screens. **The dome strainer inside the union on top of the 5-port valve should be checked for debris and cleaned often.** Always reinstall the dome strainer in the **cone-up** position. Backwash the pool filter whenever pressure increases 3 psi above normal clean-filter operating pressure. Refer to the manufacturer's instructions of the filter for proper backwashing instructions.

Changing Cleaning Heads

The cleaning head must be in the full down position before removal (see Figure 13).

1. Attach the Head Removal Tool (part number 3-17-8) to the pool pole.
2. Snap tool into the head.
3. Turn counter-clockwise (1/4 of a turn) to release head from collar.
4. Pull and lift head out of collar.

To reinstall, simply insert head into collar and turn clockwise to lock it into position.

Winterizing

⚠ CAUTION

To prevent freeze damage in cold climates, remove water from the feed lines that are above the freeze line and seal the valve.

1. Remove the 5-port valve. Refer to instructions on Page 11.
2. Remove any cleaning heads located above the freeze line (step or bench heads).
3. Use compressor or blower to blow water from discharge lines.
4. Insert winterizing plugs into ports on the valve bottom plate.
5. Place winterizing plugs into collars that are above water line to prevent runoff from filling the lines and refreezing.

Troubleshooting

If the Caretaker cleaning system displays the following actions, adjustments may be necessary to restore performance. Refer to exploded parts diagram for part references.

Action: Dirty spots appear.

- Solution:
1. Clean the pool filter, pump basket, skimmer baskets and valve dome strainer.
 2. Make sure all auxiliary valves (surface returns, waterfall, spa overflow, etc.) are closed.
 3. Ensure proper pressure, heads are rotating, proper nozzles are installed, and valve is rotating from zone to zone.

Action: Dirt is trapped between heads.

- Solution:
1. Verify that the heads on each side of dirt are pointed in the same direction. Advance a head, if necessary, using the head removal tool to ratchet the head up and down until nozzle points in the correct direction.
 2. Increase the cleaning time.
 3. May need to flow balance.

Action: Cleaning head advances, but is not cleaning.

- Solution:
1. Check for debris in the nozzle.
 2. Remove cleaning head and run pump for two (2) full cycles on problem bank. Check nozzle and reinstall head.
 3. Remove valve, turn upside down, and spray pressurized water up into the valve to clean out debris.
 4. If necessary, use part number 5-9-2001 to replace the gear assembly, ball bearings, pistons, and o-rings.

Action: Cleaning head will not pop up or does not go down.

- Solution:
1. Remove the head. Inspect the cleaning head and collar for plaster remnants or debris.
 2. With system running on the problem bank, lightly depress the problem head using a telescoping pool pole.

Action: Pressure is lower than normal.

- Solution:
1. Clean the pool filter, pump basket, skimmer baskets, and valve dome strainer. Backwash the pool filter.
 2. Make sure all auxiliary valves (surface returns, waterfall, spa overflow, etc.) are closed.
 3. Confirm that the pool pump is operating normally.
 4. Check for leaking or worn o-rings. Replace, if necessary, with part number 5-13-1.

Action: The 5-Port valve does not cycle.

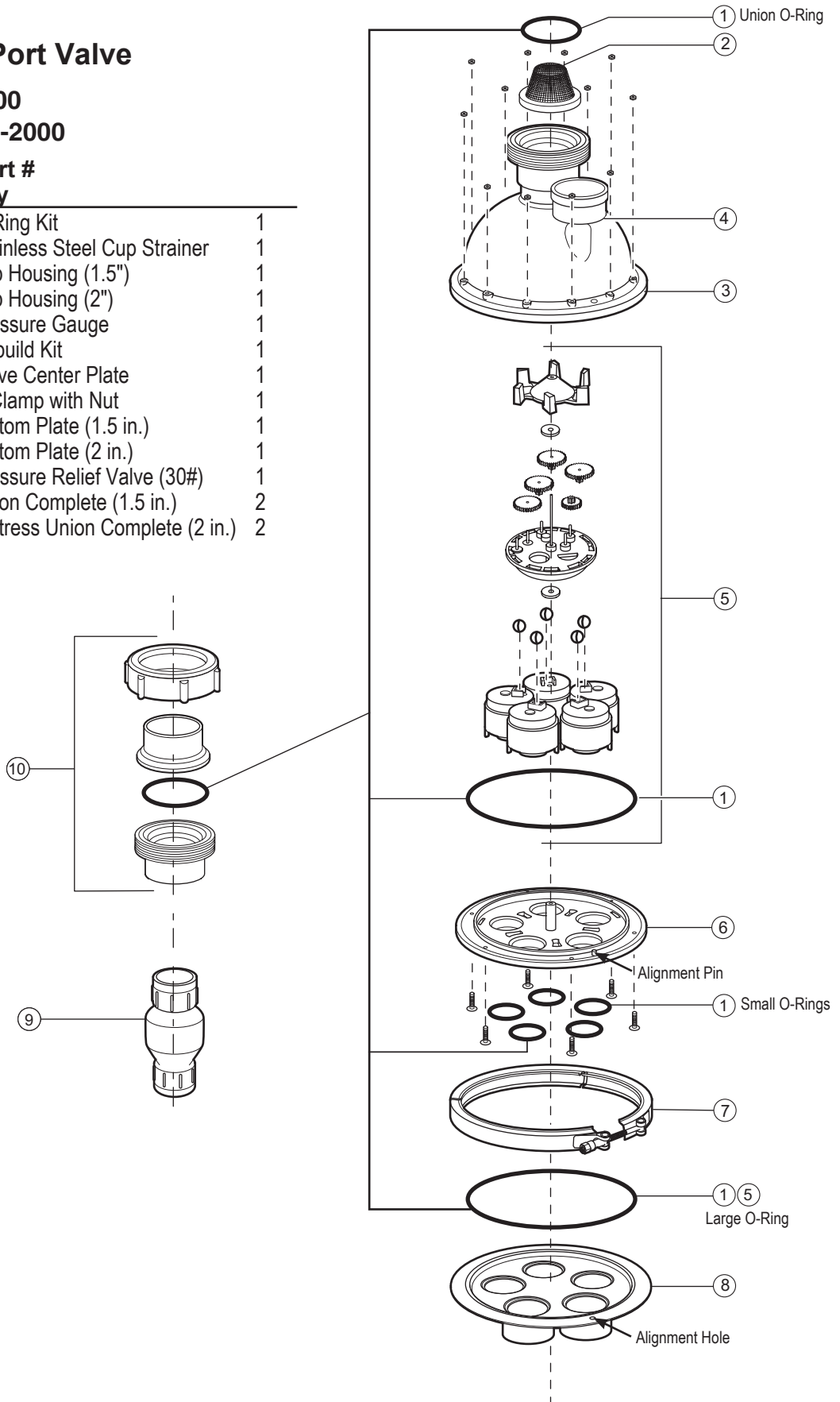
- Solution:
1. Clean the pool filter, pump basket, skimmer baskets and valve dome strainer. Backwash pool filter if necessary.
 2. Make sure all auxiliary valves (surface returns, waterfall, spa overflow, etc.) are closed.
 3. Check valve pressure gauge to ensure that you have water flowing to the valve. Pressure should be 14-22 PSI.
 4. Turn pump on and off several times to clear system.
 5. Remove valve, turn upside down, and spray pressurized water up into the valve to clean out debris.
 6. If necessary, use part number 5-9-2001 to replace the gear assembly, ball bearings, pistons, and o-rings.

Caretaker 5-Port Valve

2" Part #5-9-2200

1-1/2" Part #5-9-2000

| No. | Description | Part # | Qty |
|-----|-------------|---------------------------------|-----|
| 1 | 5-13-1 | O-Ring Kit | 1 |
| 2 | 1-1-216 | Stainless Steel Cup Strainer | 1 |
| 3a | 3-9-201 | Top Housing (1.5") | 1 |
| 3b | 3-9-211 | Top Housing (2") | 1 |
| 4 | R0532700 | Pressure Gauge | 1 |
| 5 | 5-9-2001 | Rebuild Kit | 1 |
| 6 | 1-9-214 | Valve Center Plate | 1 |
| 7 | 3-9-216 | V-Clamp with Nut | 1 |
| 8a | 1-9-215 | Bottom Plate (1.5 in.) | 1 |
| 8b | 1-9-239 | Bottom Plate (2 in.) | 1 |
| 9 | 1-1-220 | Pressure Relief Valve (30#) | 1 |
| 10a | 4-1-2002 | Union Complete (1.5 in.) | 2 |
| 10b | 4-1-2003 | Buttress Union Complete (2 in.) | 2 |



Notes

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