

**MVFUSE**  
MAGNETIC VACUUM RELEASE

## **SAFETY VACUUM RELEASE SYSTEM (SVRS)**

**FOR EXISTING DEBRIS CANISTER APPLICATIONS**  
INSTALLATION MANUAL



Safety compliant according to the Virginia Graeme Baker  
Pool and Spa Safety Act ASME A112.19.17-2002 Listed

U.S. Patent No.: 5,265,631 6,895,608 7,055,189 7,089,606

### **Notice to Installers:**

Read and follow these instructions. Give these instructions to the facility owner to keep for future reference. Follow all codes and regulations that apply to the design, installation and use of suction outlet fittings and SVRS devices.

**WARNING:** The drain system and MVFUSE must be installed in accordance with Paramount's written instruction manual, and in conformity with applicable Federal, State, Local and swimming pool industry building safety codes.

MVFUSE RETRO 004-027-8803-00 REV111809

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**Paramount**  
Pool Life. Simplified.

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# IMPORTANT NOTICES: PLEASE READ



## **WARNING**

**KNOWN DROWNING HAZARD!**

**DO NOT GO NEAR THE SUCTION FITTINGS OR DRAINS OF YOUR POOL OR SPA. YOUR HAIR OR BODY MAY BECOME TRAPPED CAUSING PERMANENT INJURY OR DROWNING.**

**DO NOT ENTER THE POOL OR SPA IF SUCTION FITTINGS OR DRAIN COVERS ARE LOOSE, BROKEN OR MISSING. INSPECT SUCTION FITTINGS INCLUDING FASTENERS FOR DAMAGE OR TAMPERING BEFORE EACH USE OF THIS FACILITY.**



## **WARNING**

**RISK OF SEVERE INJURY OR DROWNING IF SUCTION SYSTEMS ARE NOT INSTALLED PROPERLY!**



## **WARNING**

**READ, FOLLOW, AND KEEP THESE SAFETY INSTRUCTIONS FOR FUTURE REFERENCE.**



## **WARNING**

**THE MVFUSE IS DESIGNED AND INTENDED TO BE USED AS AN ADDITIONAL “LAYER OF PROTECTION” TO PROTECT AGAINST A SUDDEN ENTRAPMENT EVENT. THE MVFUSE IS NOT A STAND ALONE DEVICE AND SHOULD ONLY BE USED IN CONJUNCTION WITH AN ASME A112.19.8 LISTED SUCTION FITTING RATED APPROPRIATELY FOR THE FLOW RATE OF THE PUMP AND PLUMBING SYSTEM IT IS CONNECTED TO.**



## **WARNING**

**IN THE INCIDENT OF A SUDDEN ENTRAPMENT EVENT ALL BATHERS SHOULD EXIT THE POOL AND NOT BE ALLOWED TO REENTER UNTIL SUCH TIME AS THE MVFUSE CAN BE RESET, THE PUMP FULLY PRIMED AND THE REASON FOR THE ENTRAPMENT IS DETERMINED AND CORRECTED!**



## **WARNING**

**THE MVFUSE IS DESIGNED TO PROTECT A FULLY PRIMED PUMP AND MAY NOT RELEASE VACUUM DURING PRIMING OF THE PUMP. NO BATHERS SHOULD BE ALLOWED IN THE POOL WHILE THE PUMPS ARE PRIMING!**



## **WARNING**

**THE MVFUSE IS DESIGNED TO PROTECT AGAINST A COMPLETELY BLOCKED SUCTION SYSTEM AND MAY NOT DETECT A PARTIAL BLOCKAGE, LIMB OR HAIR ENTRAPMENT. THE MVFUSE IS NOT DESIGNED TO PROTECT AGAINST DISEMBOWELMENT. THE ONLY PROTECTION FROM THESE TYPES OF ENTRAPMENT IS A PROPERLY FASTENED AND INTACT ASME A112.19.8 LISTED SUCTION COVER.**



## **WARNING**

**THIS POOL MAY HAVE AN MVFUSE SVRS SYSTEM AS A LAYER OF ANTI-ENTRAPMENT PROTECTION ON THE SUCTION OUTLETS! IF AN MVFUSE SVRS IS INSTALLED ON THIS SYSTEM ATTACH THE ENCLOSED WARNING LABELS TO THE CONTROL PANEL AS INSTRUCTED ON PAGE 9 OF THIS MANUAL. IF THIS POOL OR SPA HAS BEEN WINTERIZED THE MVFUSE SVRS MUST BE INSPECTED AND TESTED WHEN STARTING THE POOL FOR THE SEASON. REMOVE THE WINTERIZING PLUGS FROM THE DEBRIS CANISTER AND INSTALL THE MVFUSE SVRS BEFORE ENERGIZING THE PUMP(S)! TEST THE MVFUSE SVRS BY BLOCKING THE DRAIN. AIR SHOULD ENTER THE PIPE AND CAUSE THE PUMP TO CAVITATE RELEASING THE SUCTION ON THE DRAIN BLOCK. THE MVFUSE IS NOT PROTECTING THE SUCTION WITH THE WINTERIZATION PLUG IN PLACE!**

# IMPORTANT NOTICES: PLEASE READ

Suction can pose a serious hazard to swimmers just as electricity can be a hazard. Both are important for proper water filtration and both must be treated with respect. Suction safety begins with a professional design that includes a quality suction system installed by a certified contractor.

Certified builders will address the following issues when designing and installing proper filtration systems:

- Properly bond-grounded pumps, time clocks, switches and any other metal in or near water. This is required to address Electrical Shock Hazards.
- Design the suction piping so there are no single-point suction hazards; single point suction (one drain) is a leading cause of Body Suction Entrapment Hazards. Note: your certified builder has many effective options for addressing this hazard' they may include dual drain systems, like MDX, MDX2 and SDX, skimmers, gutters, and other products and piping designs known to professionals.
- Install only drains, suction covers and debris removal systems listed to the current published revision of the ASME A112.19.8. This is the **ONLY** approved option for preventing Hair Entrapment Hazards, the leading cause of suction related injuries.
- Design and install an effective circulation system (including optional cleaning systems), to direct filtered water to all areas and interior surfaces. NOTE: Suction fittings can NOT clean or direct filtered water for proper sanitation; that can only be done on the pressure (return) side of the filtration system.

While suction injuries are extremely rare, drowning and diving injuries are far too common and there is little your certified builder can do to eliminate these hazards. You must educate yourself and your guests. Below are some important safety issues every swimmer must know and recognize.

- **PREVENT DROWNING:** Watch children at all times, no swimming alone.
- **NO DIVING IN SHALLOW WATER:** You can be permanently injured.
- **PREVENT SUCTION ENTRAPMENT:** Inspect suction covers before swimming, keep swimmers away from suction fittings, protect long hair, don't swim with loose clothing or large and dangling jewelry.

**WARNING:** MVFUSE must be installed in accordance with Paramount's written instruction manual, and in conformity with applicable Federal, State, Local and Swimming Pool Industry building and safety codes.

## **WARNING READ AND FOLLOW SAFETY INSTRUCTION BEFORE INSTALLING MVFUSE.**

Give these instructions to the facility owner to keep for future reference. Follow all codes and regulations that apply to the design, installation and use of suction outlet fittings and SVRS devices.

- SVRS devices shall only be installed in conjunction with an ASME A112.19.8 suction fitting, or a 12 in. x 12 in. (305 mm x 305 mm) drain grate or larger, or an approved channel drain system at each suction outlet or drain outlet.
- Check valves and hydrostatic valves shall not be used in suction systems protected by SVRS devices.  
**WARNING: The presence of a hydrostatic valve in the suction piping has been shown to prolong the high vacuum present at the drain, even though the drain was protected by an SVRS device.**
- All SVRS devices shall be factory set or field adjusted to site-specific hydraulic conditions. Once installed, the system shall be tested by simulating an entrapment event. (See page 8 for *Test Procedure*)
- A test mat shall be used to cover the suction outlet to simulate an entrapment event. There shall be three simulated entrapment test conducted to verify proper adjustment and operation of the device.
- One SVRS device shall be installed for each circulating pump plumbed directly to the suction outlet(s) without the use of valves that could isolate the SVRS device from the suction system.

# SYSTEM DESIGN

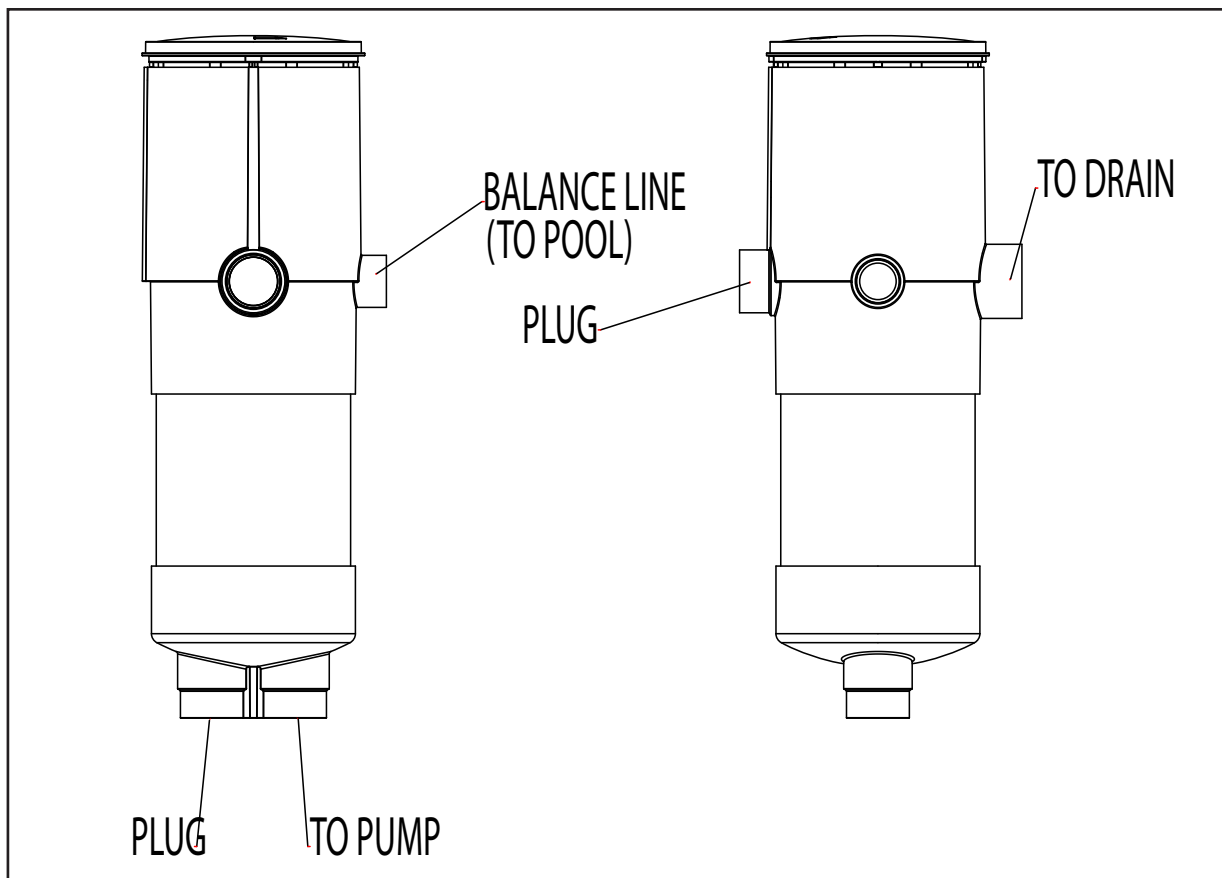
The MVFUSE is an SVRS device listed by IAPMO to conform to the specifications of ASME A112.19.17-2002. It is factory set for specific design criteria. For use in Paramount's in deck debris canister the unit is factory set at setting #4 (11.25 +/- .5 in Hg). If adjustment is needed see *Test and Adjustment Procedure* on page 8.

**Warning: MVFUSE is a listed S.V.R.S. (Safety Vacuum Relief System) that is designed to break suction to prevent suction entrapment injuries and death. Removing, tampering with, modifying, and or changing the setting on the MFVFUSE can result in serious injury or death. Please call your pool builder or 1.800.621.5886 for direction or for a trained technician in your area.**

The following system design is important for nuisance free operation of factory set MVFUSE devices:

- The suction plumbing system should be designed to not exceed 6 feet per second.
- There should be dual ASME A112.19.8-2007 listed suction outlets a minimum of 3 feet apart at the suction inlet to the suction plumbing per one of the methods listed in ANSI/APSP-7 or other applicable building codes such as the IRC, IBC, Federal, State or Local which may be in force.
- The MVFUSE should be teed into the suction line as close to the drain as possible and mounted next to the pool in the deck.
- The balance line port on the side of the Debris Canister must be stubbed through the side of the pool or the pump will cavitate.

**DO NOT INSTALL AN MVFUSE ON A CANISTER WITH NO BALANCE LINE INSTALLED. IT WILL CAUSE THE PUMP TO CAVITATE!**



# EXISTING DEBRIS CANISTER INSTALLATION

1. Remove the old clear lid.
2. Install the Ring Stop that comes with the MVFUSE canister model.



3

Shut off the pump system and remove the deck lid from the canister.



4

Remove the internal lid and basket from the canister.



6

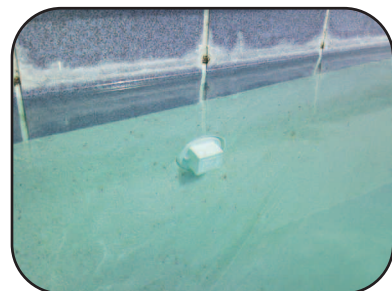
Dry the remainder of water with a towel or rag. Remove any existing tabs with chisel/hammer and/or pliers.

Remove any debris in the area below the tabs, between the canister housing and the lid seal ring. This area must be clean and dry.



5

Plug both 2" threaded side ports with 2" plugs and the 1/2" balance line port on the pool wall with an expandable or threaded plug. Plug the 2" port(s) in the bottom of the canister.

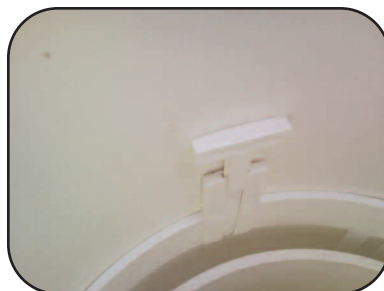


Drain the canister of water using a shop vacuum with a narrow tip or cup. The water level must be below the side ports.



7

Test fit ring with T-wedge. Place ring in canister so wedge notch is on side without a port. The ring feet must sit between the canister wall and the lid seal ring so the ring is level. The ring must tighten in canister at or before bottoming the T-wedge into the notch. The T-wedge must be placed in the ring so the step is toward the inside. Incorrect placement could cause interference between the ring and internal lid.



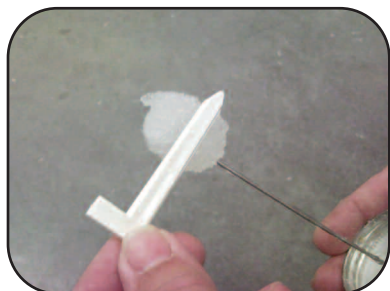


# EXISTING DEBRIS CANISTER INSTALLATION

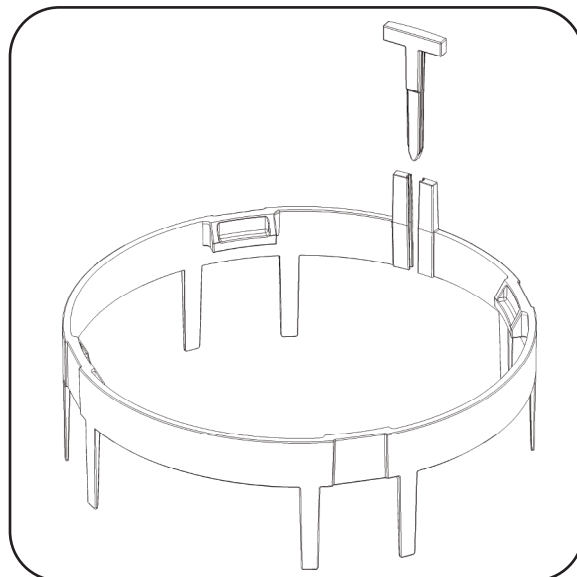


8

Remove the ring and apply PVC primer and slow/medium set glue, such as IPS Weld-On 705, to ring and canister wall.



Place the ring into position and then quickly wipe the T-wedge on the glue dauber and fully insert it into the ring notch and ensure that the ring is level.



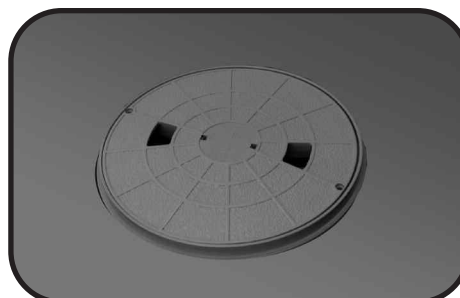
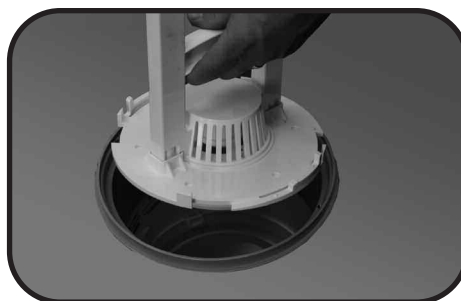
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MVFuse Stop Ring w/ Wedge (White)

**9.** Insert MVFUSE lid assembly into canister.

**10.** Turn lid assembly clockwise until it clicks into place on the retention stops.

**11.** If the lid assembly is not held securely it will back out or bounce on startup causing the MVFUSE mechanism to open and cavitate the pump.



# TESTING

**WARNING:** The MVFUSE must be tested at the initial startup of the pool after installation. The MVFUSE should be retested for proper operation once every month or every time the pool filter is cleaned which ever is more frequent.

To test operation of the MVFUSE with a skimmer in the suction system.

1. Start the pump and ensure full prime then proceed to testing the MVFUSE.
2. If the pool has a skimmer attached to the pump open the skimmer valve all the way.
3. Turn off the pump.
4. Remove the MVFUSE from the canister and install a 2" threaded plug or rubber expansion plug into the drain line inside the canister.
5. Replace the MVFUSE into the canister.
6. Turn on the pump.
7. Close the skimmer valve.
8. The MVFUSE should open within three seconds and allow air into the plumbing causing the pump to cavitate.
9. Turn off the pump, remove the MVFUSE and push the reset plunger on the bottom and replace the MVFUSE in the canister.
10. Open the skimmer valve and reprime the pump. This test must be done three times to ensure proper operation of the MVFUSE.
11. Once you have determined the MVFUSE is functioning properly remove the plug from the canister and reset the skimmer valve.

Alternate MVFUSE test for plumbing system with no skimmer.

1. Start the pump and ensure full prime then proceed to testing the MVFUSE.
2. Block all drains on the plumbing system with a rubber or vinyl mat.
3. The MVFUSE should open within three seconds and allow air into the plumbing causing the pump to cavitate.
4. Turn off the pump, remove the MVFUSE and push the reset plunger on the bottom and replace the MVFUSE in the canister.
5. Remove the mat and reprime the pump. This test must be done three times to ensure proper operation of the MVFUSE.
6. Once you have determined the MVFUSE is functioning properly remove all mats

If the MVFUSE trips when the pump is started before the blockage is applied or the MVFUSE does not open and relieve suction when the valve is closed in step 7 or the mat is applied in alternate step 2, the setting is not correct for your suction system and the MVFUSE must be field adjusted. Follow the procedure below or contact your pool builder or Paramount at 1.800.621.5886.

**Warning: MVFUSE is a listed S.V.R.S. (Safety Vacuum Relief System) that is designed to break suction to prevent suction entrapment injuries and death. Removing, tampering with, modifying, and or changing the setting on the MFVFUSE can result in serious injury or death. Please call your pool builder or 1.800.621.5886 for direction or for a trained technician in your area.**

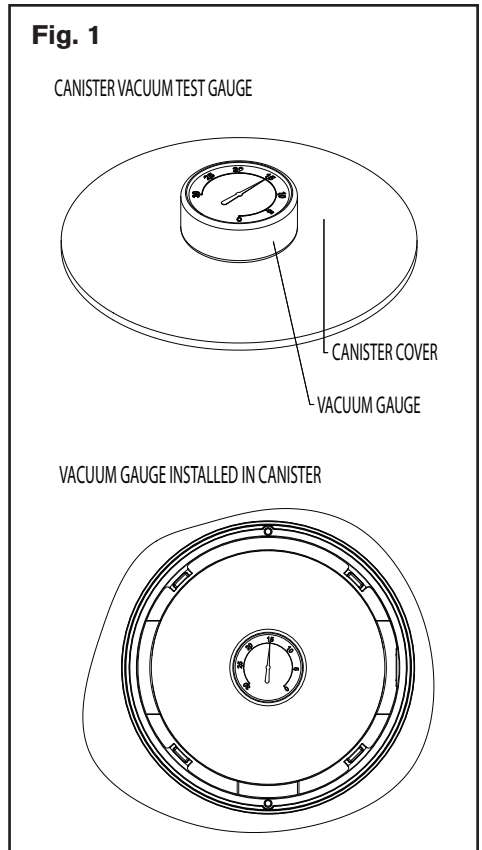
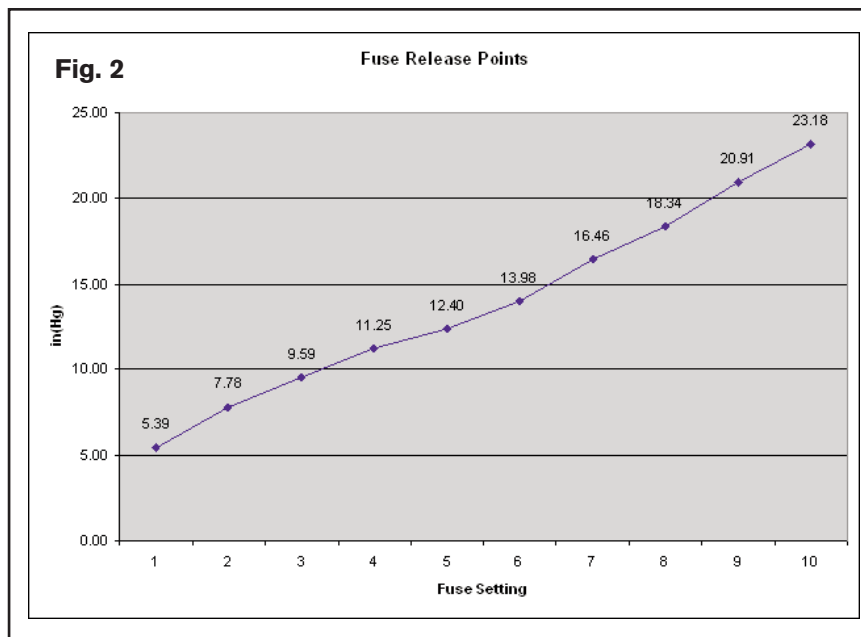


# MVFUSE ADJUSTMENT

Sometimes improperly built plumbing systems may cause an elevated suction condition at the suction outlet. This can cause the MVFUSE to trip when the pump is started. This condition will require the MVFUSE to be adjusted to onsite field conditions. MVFUSE can be adjusted by the following steps.

## Field Adjustment for Site Specific Conditions

- First clear all baskets and clean the filter. Make sure the pump is on its highest setting and the returns are wide open. This will ensure the maximum suction load at pump startup.
- Second test for the current static vacuum level.
  1. Turn off the pump
  2. Remove the MVFUSE
  3. Install the plate with the vacuum gauge in the canister (Fig 1).
  4. Turn on the pump
  5. Read the vacuum gauge
- Match the reading from the vacuum gauge with the chart (Fig 2). The setting should be 5 inches above the reading to allow for startup surge. Note which setting this is from the chart below.
- You will need a Phillips screwdriver and pliers (Fig 3)



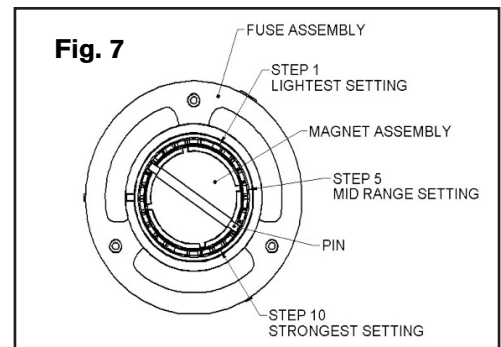
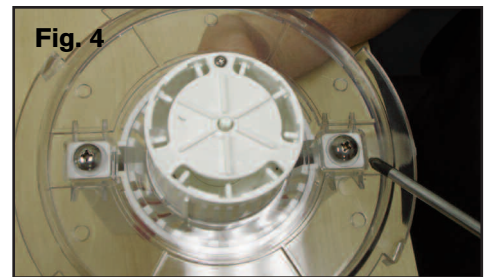
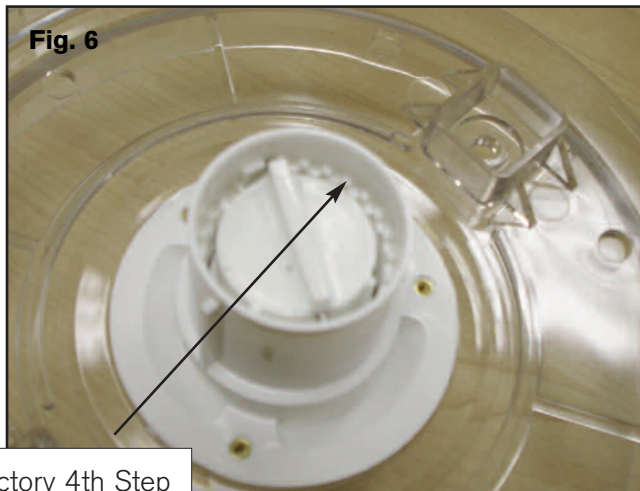
- Change the Setting Canister version
  1. Using a Phillips driver remove the two screws on the bottom of the unit. (Fig 4)
  2. Remove the handle. (Fig 5)
  3. Look inside at the magnet housing hanging from a pin in a series of steps. (Fig 6) The highest step is the lightest or most sensitive setting shown in the picture. This setting will



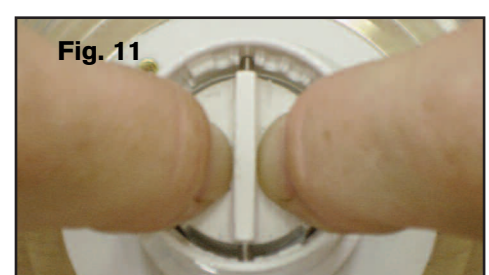
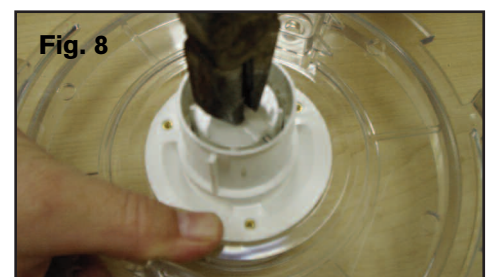
# MVFUSE ADJUSTMENT

give the quickest response to an entrapment event. The 4th step down from the top is the factory setting.(Fig 7)

- Warning! The closer to the lightest setting (highest step) the MVFUSE is set on the more protection you have.
4. Grasp the top of the magnet assy with the pliers and pull it out of the groove it sits in.(Fig 8)



5. Rotate the magnet assembly to the desired setting from the chart on the previous page.(Fig 9)
6. Roll the pliers off the part. If you try to pull them off the magnet assembly may come out of the housing assembly.(Fig 10)
7. Push the magnet assembly into the seat.(Fig 11)
8. This will slightly increase the magnetic clamping.
9. Reassemble unit. The fuse assembly must be turned into the clear lid or the handle will not fit.
10. Install the MVFUSE in the canister.
11. Turn on the pump.
12. Rerun the startup test three times per the manual (pg 8 steps 1-8).



# WINTERIZING INSTUCTIONS

To winterize the MVFUSE Canister model

1. Remove MVFUSE AND basket, clean and dry off, and store in same area as modules .
2. Install and secure regular winterization plug in equalizer line of canister to pool at poolside.
3. Install and secure Schrader plug or blow out plug from canister to main drain. Blow out and obtain air lock as previously described, if skimmer is tied into canister, repeat procedure to skimmer.
4. Bottom port of canister to pump may require an extended pipe for ease of blowing out. Install and blow out line from canister to pump. Install and secure plug in pump. Using a wet/dry shop vac, remove all water from within canister components.
5. Extension pipe can be removed and replaced with plug or Gizmo type container if Gizmo not used. Be sure to install device to absorb ice expansion in canister area. Failure to do this may result in potential ice freeze damage to canister.

Winterization anti-freeze is to be used as necessary or when required.

**WARNING:** When opening the pool after being winterized the MVFUSE must be checked for proper operation. Go to Test Section for instructions on page 8.

Additional questions should be forwarded to Paramount's corporate office at 800.621.5886..

## MVFUSE WARNING LABEL (Fig 8)

Included in each MVFUSE is one warning label that needs to be placed on the pool equipment if the pool is to be winterized and has a MVFUSE on any of the drains plumbed on the pool.

Attach is the label to the control panel next to the controller for the pump with the MVFUSE plumbed to it. **(See Fig. 8)**

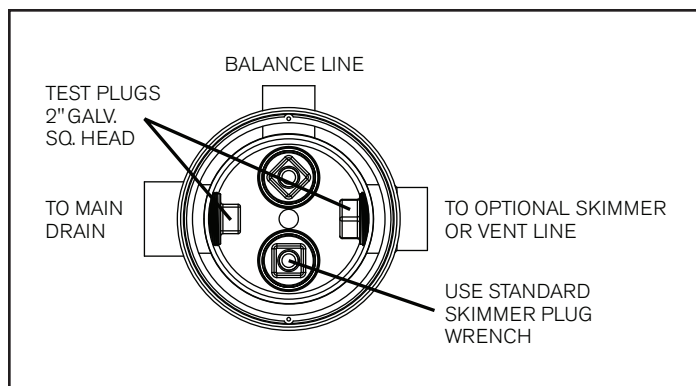


Fig. 8

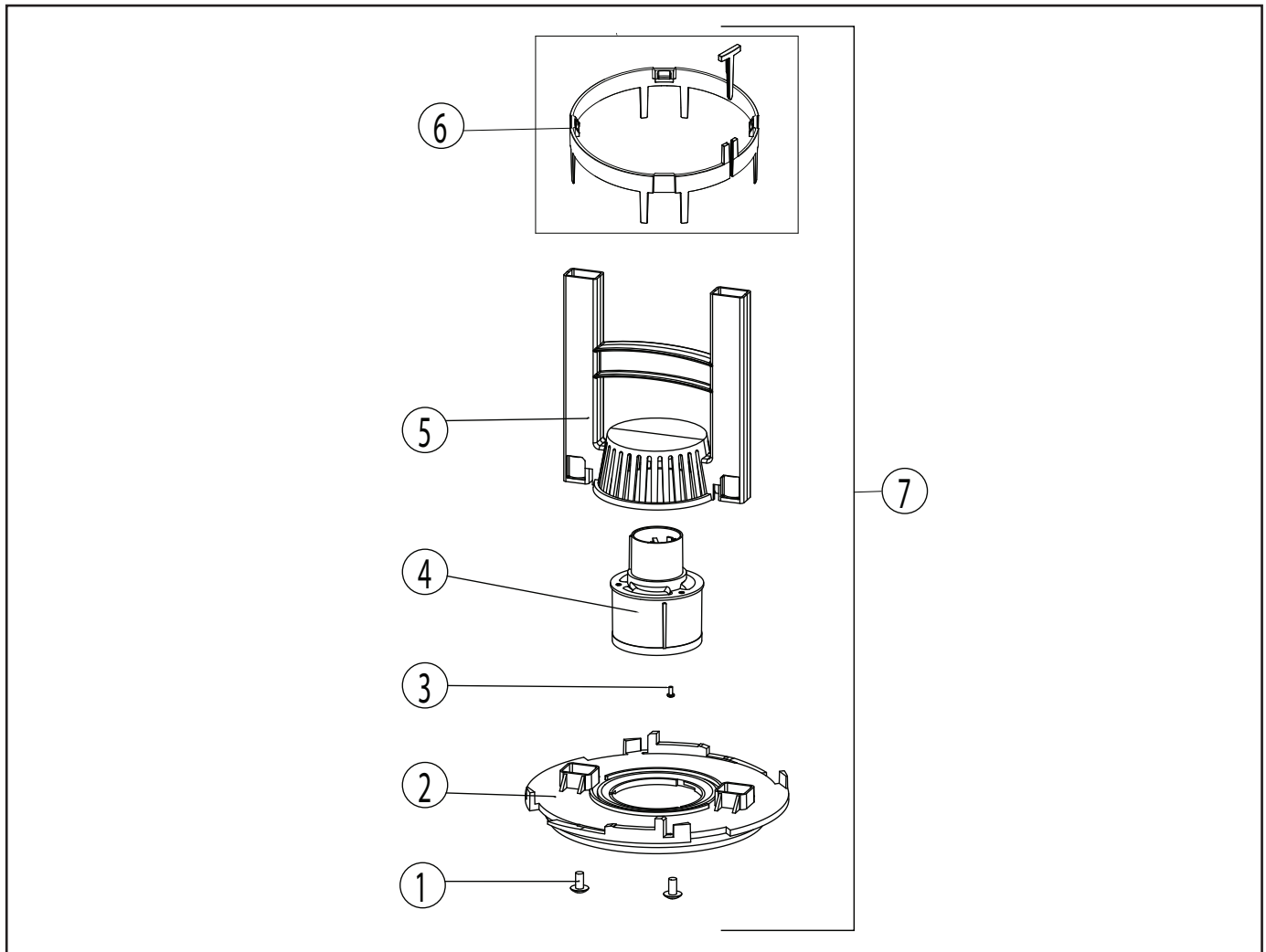


## WARNING!

This pool is protected by an MVFUSE SVRS device. When starting pool after winterization, remove Plugs and reinstall MVFUSE into deck side canister before energizing pumps.

Test MVFUSE blocking drain three (3) times. Refer to manual for complete test instructions. Air should enter the pipe and cause the pump to cavitate releasing the suction on the drain block.

001-025-8250-00 REV11/09



Item	Part Number	Description
1	*	Screw 1/4-20 x 1/2 Mach Phil Truss hd 316 SS
2	*	MVFUSE Cansiter Lid
3	*	Screw 4-40 x 1/4 Mach #10 Torx Pr hd 316 SS
4	*	MVFUSE Assembly
5	*	MVFUSE Handle
6	*	MVFUSE Ring Stop
7	004-670-2000-00	MVFUSE with Ring Stop

01 - White 02 - Gray 03 - Beige

\* Not Available Separately

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For technical assistance call 1-800-621-5886 or contact your regional representative.