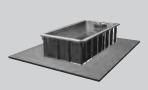
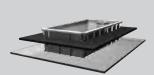
# INSTALLATION, OPERATIONS AND USER'S MANUAL





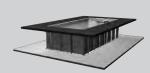


Fully Aboveground Installations





Partially In-Ground Installations





Fully In-Ground Installations



#### **Installation Instruction Booklet Information**

The entire Endless Pool system is ETL listed, Ref. #2001779 and conforms to UL Standard #1563. Individually, all electrical components of the Endless Pool are UL and/or CSA approved. As defined by the International Residential Code (IRC), the Endless Pool is considered an aboveground or an in-ground pool depending on the installation. That is to say, customers can install our Endless Pool Kit above-ground on a garage or basement floor or in the backyard or they can sink it partially or fully in-ground. The unit is completely self-supporting. As required by the IRC the Endless Pool meets all the following standards: ANSI/NSPI Standards #3 (Permanently Installed Residential Spas), #4 (Aboveground/On-ground Residential Swimming Pools), #5 (Residential In-ground Swimming Pools), and #6 (Portable Spas). The appropriate governing standard is dependent on the installation method and the requirements and definitions used by the local governing bodies.

All electrical connections should be made by a licensed electrician in accordance with the current national and local electrical codes.

All pool equipment including the 4 kW electric heater, circulating pump and 5 HP hydraulic power unit runs off one 30 amp, single phase, GFCI protected, 220 volt service. A minimum of 10AWG wire should be used for all field wiring. We recommend you install a shut off within 5' of where you intend to place your power unit.

Please read this Owner's Manual and all associated Supplemental Guides prior to beginning your project.

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#### I. Pool Arrival and Inspection

The Standard Endless Pool® arrives in three packages: a skid of pool panels weighing approximately 850 lbs., a 4' x 8' x 4' high crate weighing about 1,150 lbs and a pair of 6 5/8" wide steel reinforcing channels. Most shipping companies will lower the containers to the ground with a hydraulic lift gate on their truck. The pool can remain in the containers until you are ready to begin installation. Please contact our shipping department prior to shipment to answer any questions you may have. Since every delivery is slightly different, and depends to a large extent on site conditions, it is important to speak with our shipping department well in advance to reduce the chance of surprises.

Upon arrival, the packages should be inspected for external damage. Should there be visible damage, you must complete a damage-claim report provided by the truck driver. Please call the Endless Pools shipping department immediately at (800) 732-8660. The pool components are not damaged by freezing conditions and may be stored outside under a tarp for an extended period prior to installation.

To begin installation, or to move pool components, begin unpacking the pool. Using a hacksaw or tin snips, remove the steel packing straps encircling the pool panel skid. The wooden top and sides of the crate may be removed with a phillips-head screwdriver.

#### 2. Site Preparation

It is important that your Endless Pool® be installed over a smooth, level concrete slab that is capable of supporting 260 pounds per square foot. The thickness and the quality of the concrete slab will affect the anchoring method.

If you are using the anchor bolt kit or you are installing a Custom Deeper Pool, then the floor must contain no voids or bumps and shall be relatively smooth and level. For custom deeper pools, the walls of the deeper section must also contain no voids or bumps. The corners at the depth change should be eased slightly (approx 1/4"). Custom deeper pools must use the Anchor Bolt Kit. Anchoring the pool is discussed in more detail later in these instructions as well as in a Supplemental Guide. An optional Tension Strap and Floor Leveling Kit is available for out-of-level or non-smooth sites.

If a new slab is poured, consult your local electrical codes regarding grounding and bonding. Many areas require a bonding wire to be attached to the reinforcing bar that is buried in the concrete.

Drainage should be provided at the pool. It is ideal to install a floor drain in the area just outside of the front pool panel, but not directly under the panel or pool itself. In installations where this is not possible, installation of a secondary containment system to help divert water to a more desirable location is recommended. Please call the Customer Service Department if you need any assistance in the design of a containment system.

It is extremely important to ensure that any water that may reach the bottom flange of the pool panel, by splashing, run off, or accidental leakage, be drained away immediately. With the bottom flange of the pool panel standing in water, corrosion may occur over time.

It is worth the time and effort now to install a drainage system rather than be unprepared in the event of a mishap.

#### 3. Assembly of Pool Panels

Provided with this Installation and User's Manual will be the appropriate panel assembly Supplemental Guide for the Swim Current that has been chosen.

This Guide will take you through assembling the panels, anchoring the panels, and drilling the appropriate holes into the panels. It is critical that this Guide be referenced at this point. Any required hole must be drilled before proceeding with the installation.

#### 4. Options

An Endless Pool® is usually customized to meet the needs of the end user. Pools of different lengths and widths are selected as well as deeper pools. Naturally, the installation will vary depending on the options selected so it is important to understand exactly what has been supplied. On the day your pool ships, you will receive an email with a customized owner's manual containing the appropriate Supplemental Guides for the options that were purchased. A hard copy of that same owner's manual will be packaged in the pool crate. Please review all appropriate Supplemental Guide before proceeding with the installation to ensure that selected options have been considered.

Additionally, the placement of the Water Quality System keypad needs to be considered. The majority of our customer's place the keypad in the coping of the pool. However the keypad can be mounted in the skirting or on a nearby wall as an alternative. Please refer to the Keypad Section of these installation instructions for a more detailed description.

### 5. Automatic Retractable Security Cover

If you have purchased a Below Deck Automatic Retractable Security Cover (BDARSC) then the installation must begin at this time. The cover mechanism and bracket will be attached directly to the pool panels.

The BDARSC must be mounted at the front of the pool. A minimum of 24" horizontal clearance is required at the front of the pool for the Drive Mechanism. The combination in-wall cover track and liner hanger will raise the coping off the reinforcing channel by 2-1/8". The coping or other finish material covering the front edge of the pool must be constructed so to not interfere with the operation of the cover. At a minimum, access must be maintained in the finished work for the track end guides at the front corners of the pool. Ideally, there should be access to the entire cover mechanism.

For more detailed information on the assembly and installation of this option, please refer to the Below Deck Automatic Retractable Security Cover Supplemental Guide.

#### 6. Optional Insulation (by others)

To conserve heat and reduce operating costs we strongly recommend that the Endless Pool be insulated with rigid foam. Simple 2" thick rigid foam insulation boards are usually adequate and are available from any building supply house. Check with your supplier for a recommended adhesive appropriate for the type of rigid insulation that they supply. Be sure to leave access to all of the panel cutouts when you are installing the insulation. Be sure to consider the danger of freezing for any pipes running outside the insulation.



Refer to the appropriate Supplemental Guide if you purchased one of our optional Skirting Kits (Fig 6).

If you have selected the hydrotherapy jet option and your pool is exposed to freezing conditions, please refer to Hydrotherapy Jet Supplemental Guide for additional insulating measures.

#### 7. Liner Hanger

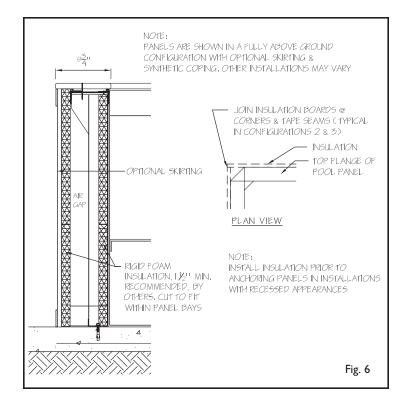
The aluminum liner hanger installs around the perimeter of the pool panel enclosure. The liner hangs from this extrusion using a bead that is heat welded into the top edge of the liner. The liner hanger system is packaged in the pool. Self-drilling fasteners are included in the kit along with a nut driver attachment for your drill (Fig 7).

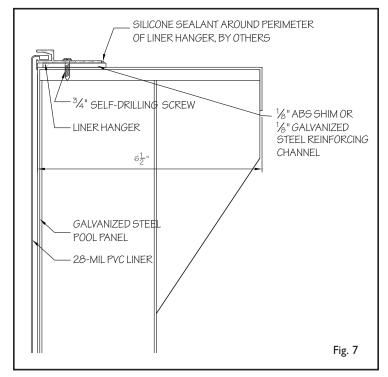
Because the height of the 2 steel reinforcing channels is slightly higher than the surrounding top flange, we provide PVC shims inside the kit to place under the liner hanger and to shim the hanger up to the level of the channels to keep the whole system level. The shims can be cut with a hacksaw or scored with a utility knife and snapped to fit the size of the pool. Over the channels, the fasteners should be drilled through the channel and the flange. You may use a pilot hole if you wish. Elsewhere, the fasteners must be drilled through the shims and the panel flange.

Take the four 8' lengths of liner hanger that have been notched in the center, and bend these pieces so that they will fit and be secured in each corner. Measure to ensure the corner piece is centered in the corner. Use two self drilling fasteners and PVC shims to secure the small corner length first, by drilling through the back corner of the liner hanger flange, then secure the rest of the hanger to the end and side panels, using shims when not securing through the channel. The hanger pieces should be flush with the inside of the reinforcing channel and will protrude into the pool the thickness of the channel everywhere else.

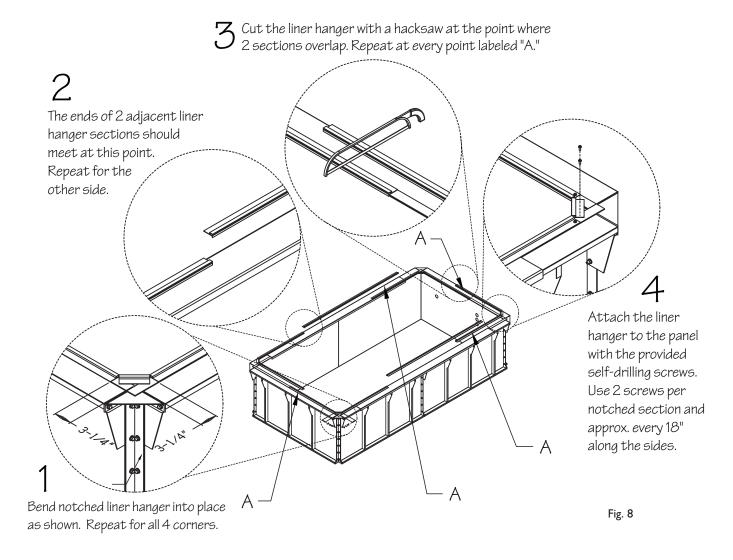
Once the corner lengths are secured, install the remaining two lengths of liner hanger along the side of the pool. These pieces vary in length, depending upon your pool size, so they may need to be trimmed. It is important that the gap at any joint between two liner hanger pieces be no greater than 1/8".

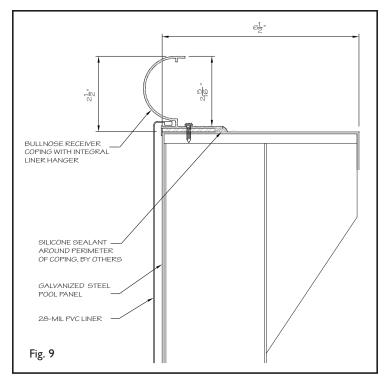
Caulk the gap between the liner hanger and the panel to ensure that no water falling on the top flange of the pool panel can work its way down behind the liner. (With the same objective in mind, later caulk the joint between the top of the liner hanger and the coping that you install over the entire top flange of the pool.)











## 8. Optional Liner Hangers

#### **Optional Bullnose Coping System**

Typically used when the pool is installed fully in-ground, the Optional Bullnose Coping System allows the installer to finish with concrete and/or tile right up to the water's edge. The aluminum bullnose coping system acts as both a liner hanger and a finished edge. Endless Pools, Inc. supplies precut pieces to fit the specific pool size ordered. Included in the kit are radius corners and straight pieces to provide a finished look. These extrusions are fastened down to the top flange of the pool panels through the PVC shims and the reinforcing channels in the same fashion as the regular liner hanger system. The installer is responsible for building a proper perimeter substrate for the concrete or tile (Fig 9).

#### **Optional Wood Receiver Coping System**

Typically used when the pool is installed fully in-ground, the Optional Wood Receiver Coping System allows the installer to finish with wood or synthetic decking right up to the water's edge. The aluminum Wood Receiver Coping System acts as both a liner hanger and a finished edge, which can easily accept 2" wood coping. Endless Pools, Inc. supplies precut pieces to fit the specific pool size ordered. Included in the kit are mitered corners and straight pieces to provide a

finished look. These extrusions are fastened down to the top flange of the pool panels through the PVC shims and the reinforcing channels in the same fashion as the regular liner hanger system. The installer is responsible for building a proper perimeter substrate for the decking material (Fig 10).

**Optional Aluminum Coping System** 

The Endless Pools Aluminum Coping Option offers a convenient method to finish off the top edge of your Endless Pool, either indoors or out. The coping, which also acts as a liner hanger, is 1-3/8" thick and comes in a sand textured white finish. The pieces are precut to fit your pool size and fit securely over the steel channel. The coping system is delivered with your pool. It may be ordered later and shipped by UPS ground for an additional shipping charge. The kit's weight depends on the pool size and comes in 5 boxes (Fig 11).

Each coping kit contains pre-fabricated corners and straight aluminum pieces cut to match your pool size. These corners are either square or mitered based on your order. The 8" wide profile of the coping makes it ideally suited for pools that are freestanding or partially recessed. The coping is secured to the top of the wall panel with tek screws, which are concealed beneath the aluminum snap strip of the same finish as the coping. As an alternative the 6-3/8" snap strip can be eliminated and a 6" accent tile can be installed. Joints between the adjacent coping pieces are covered with an aluminum cover strip with the same finish as the coping.

The front panel will need to be extended or packed out with customer supplied finished materials to extend beyond the equipment mounted on the front panel. See Technical Specification for details.

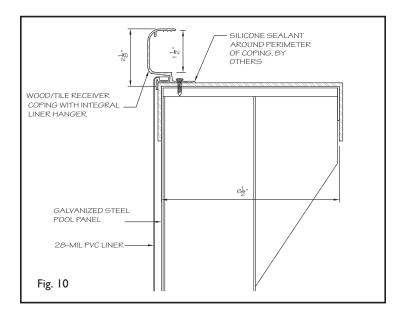
#### 9. Liner Underlayment

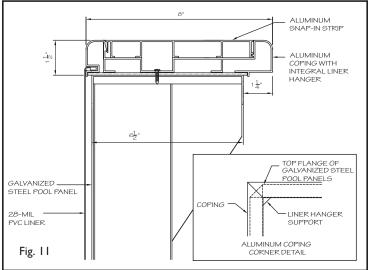
If it is possible, finish the rest of the pool area, especially the ceiling over the pool, before proceeding. This will help ensure that the liner is not damaged, and also keep the pool water, skimmer, and filter free of construction debris.

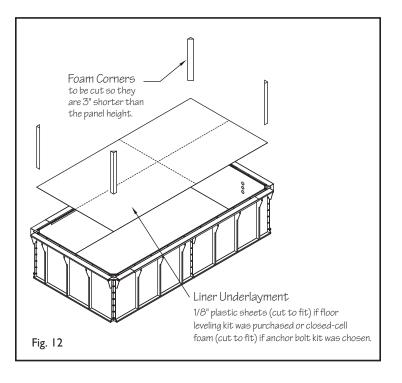
Vacuum the pool floor carefully, and make sure there are no sharp bumps that might damage the liner. Take special care to remove any metal chips that may have fallen on the floor.

If you have purchased the Anchor Bolt Kit, then that will come with a roll of closed cell foam. Install the protective foam underlayment on the floor of the pool. The foam kit comes in a box with the four foam corners and a can of spray adhesive. The foam is 3.5' x 32'. For wider pools cut pieces as appropriate to cover the floor of the pool. Place seams near the walls of the pool, so that they will be covered by the Water Return Channels. Secure the foam to the floor with the spray adhesive provided. With deeper pool installations and larger pools, a second and sometimes even a third box of foam has been provided. Secure the foam to the bottom and walls of the deeper area as well as to the floor of the pool.

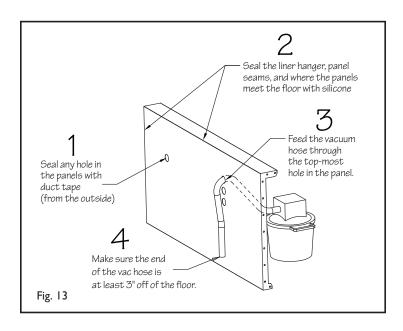
If you have purchased the Floor Leveling Kit, then that will come with loose fill vermiculite and sheets of plastic flooring. The vermiculite will be used to level the floor filling in voids or covering bumps. The plastic floor will be cut to fit and placed over the vermiculite and will be taped to themselves and to the base of the panels.

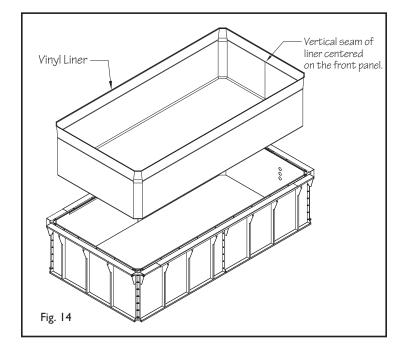












Do not attach foam to the steel walls of the pool. Secure the foam inserts in the 4 corners at the bottom. Foam corners are not installed in the 4 corners of the deeper section of a custom deep-end pool (Fig 12).

#### 10. Liner

Standard flat bottom pool liners are usually packaged in a cardboard box in the pool crate. Liners for deeper pools and custom-sized pools are sent separately by UPS Ground. Check to see if your liner was backordered at the time of shipment. If you have any questions call Customer Service about the status of your liner.

All work around your pool should be completed before you install your liner. Take a moment to be sure you have all necessary work completed. Prepare for the liner installation. Be sure that the liner hanger, corners, panel joints and panel to base material are sealed with silicone. Tape off all holes in the pool wall (lights, jets and front panel holes) from the outside. Place a vacuum hose through the highest thru-wall cutout or leave a small section of liner bead out of the liner hanger and insert the vacuum hose down from the top. Make sure that the vacuum hose opening is sealed with duct tape. The hose should be 3" - 4" off of the bottom of the pool floor foam (Fig 13).

Install the liner by starting at the center of the front panel. Spread the liner in the pool enclosure. Shoes should be removed for this and all future work in the pool to avoid damaging the liner. Find the vertical seam in the liner and center it at the front of the pool. Place the four bottom corners of the liner in the four corners of the pool. While standing in one corner, fit the top bead of the liner into the slot in the liner hanger. For easiest install, fit the liner bead at both corners of an end of the pool, then fit the other two corners at the opposite end. Work your way around the pool, fitting the bead evenly into the hanger. We recommend not ending in a corner. Smooth the liner on the floor, pushing any wrinkles toward the walls (Fig 14).

After verifying that the vacuum hose is off of the bottom, turn the vacuum on. When the liner is drawn back, check to see that the corners are positioned properly. If not, turn the vacuum off and reposition the liner. With the vacuum running, smooth out all of the wrinkles. When you are satisfied with the placement of the liner, start to fill with water.

Keep the vacuum running until there is about 6" of water in the shallowest portion of the pool. Turn the vacuum off and remove all tape and the vacuum hose. Do not fill beyond 6" at this time.

Included in the box with the liner are No Diving signs. Please post these in prominent locations around the pool. The Endless Pool is shallow and must never be used for diving. Diving into the pool is a very serious hazard and these stickers are intended to warn children of the risks. Naturally, adult supervision is also critical whenever children use the pool.



#### 11. Thru-Wall Connections (Part 1)

This step only should only be followed if the Optional Hydraulic Treadmill or Optional Hydrotherapy Jets is being installed. Otherwise, proceed to the next section.

#### Hydraulic Treadmill:

If you are installing a hydraulic treadmill then the thru-wall fittings for that option will have to be installed at this time. Use a sharp utility knife to cut a round hole in the liner, using the hole in the panel as a template. Install the thru-wall fitting as shown in Fig 15.

Proceed to next section.



If you have purchased the hydrotherapy jet option and you have cut the holes in the panel for the jet suction in the "Ideal" location (10" up from base of the panel), then they have to be installed at this time as well. Use a sharp utility knife to cut a round hole in the liner, using the hole in the panel as a template. Install the suction thru-wall fitting as shown in Fig 16. Repeat this process for the remaining jet suction fitting.

The plumbing between the suction fittings and the jet pump should be completed prior to starting to fill again as detailed in the Jet Supplemental Guide. Once this is completed, close the ball valve. This will allow you to continue filling the pool without having to plug the suction fittings from inside the pool.

Once this is completed, proceed to the next section.

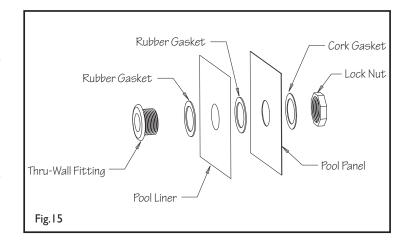
#### 12. Swim Current Component Assembly

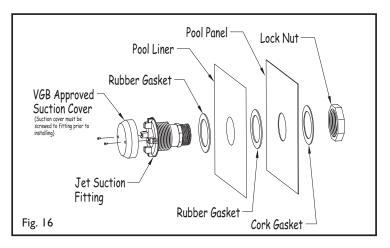
Provided with this Installation and User's Manual will be the appropriate Supplemental Guide for the type of Swim Current that has been purchased.

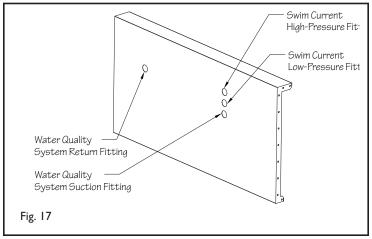
This guide will take you through the assembly of the primary internal components of the pool. Additional Supplemental Guides will be provided, and will have to be referenced, should any optional internal components (eg hydraulic treadmill, corner steps, bench seats, etc.) have been purchased.

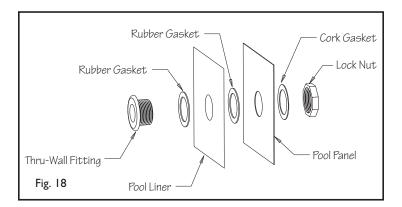
#### 13. Thru-Wall Connections (Part 2)

Once the water level is three inches below the next lowest thru-wall (above the benches), stop filling the pool so that the remaining holes in the liner can be cut. At a minimum there are four holes to be cut; the Water Quality System suction & return and the Swim Current high & low-pressure hydraulic lines. Note: if you are installing an Elite or Dual Propulsion Endless Pool, then there will be two sets (total of 4) hydaulic lines. Use a sharp utility knife to cut a round in the liner, using the hole in the panel as a template. Install the thru-wall fitting as shown in Fig 18.

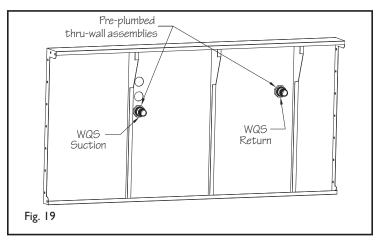


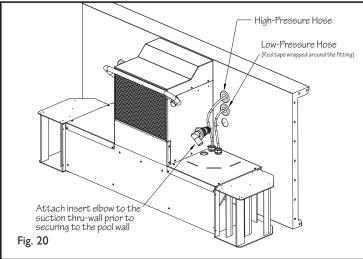


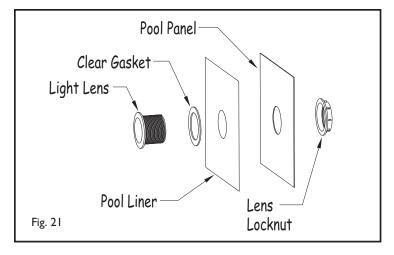


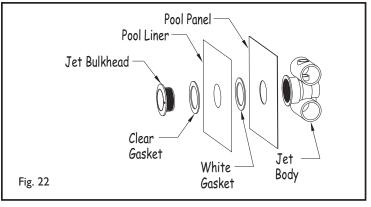












The hose with the red tape wrapped around the fitting is the low-pressure hose and should inserted into the lower of the two swim current thru-walls. The high-pressure hose is to be inserted into the higher fitting.

Install the Water Quality System pre-plumbed thru-wall assemblies as shown in Fig 19. Make sure to secure one of the insert elbows into the Water Quality Suction fitting. The elbow must be facing down and away from the propulsion housing (Fig 20).

#### **Optional Underwater LED Lights**

If the optional underwater LED lights have been purchased, then the lens barrel should be installed at this time as well. Use a sharp utility knife to cut a round in the liner, using the hole in the panel as a template. Install the lens barrel as shown in Fig 21.

#### **Optional Hydrotherapy Jets**

If the jet suction holes in the panel have been cut the panel in the "Alternate" position (above the benches) then install that fitting at this time. Use a sharp utility knife to cut a round in the liner, using the hole in the panel as a template. Install the thru-wall fitting as shown in Fig 16.

The plumbing between the suction fittings and the jet pump should be completed prior to starting to fill again as detailed in the Jet Supplemental Guide. Once this is completed, close the ball valve. This will allow you to continue filling the pool without having to plug the suction fittings from inside the pool.

The four jet fittings can now be installed as well. Use a sharp utility knife to cut a round in the liner, using the hole in the panel as a template. Install the thru-wall fitting as shown in Fig 22.

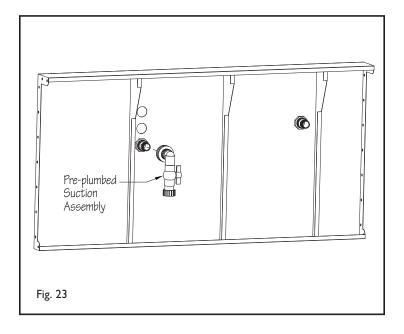
Before installing the four jets, refer to the Endless Pool Jet Hydrotherapy Supplemental Guide. The 1/2" venturi piping will need to be secured to the jet body prior to permanently installing them.



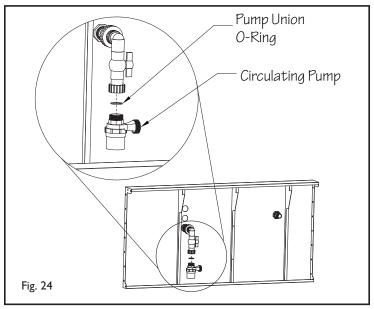
## 14. Water Quality System

Note: If you have purchased the Optional UV Sanitizer, then refer to that Supplemental Guide at this time as these instructions will have been modified to accept this option.

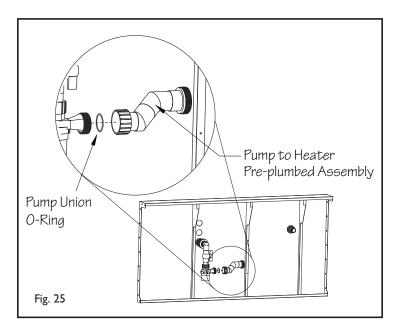
The Water Quality thru-wall assemblies should be installed by this point. Attach the pre-plumbed suction assembly to the suction thru-wall. Make sure to wrap Teflon tape around the threads of the adapter that is glued into the thru-wall. The union of the pre-plumbed suction can be taken apart to make this step easier (Fig 23).



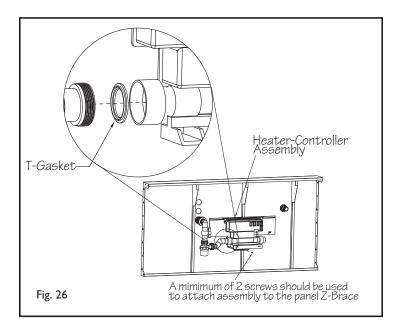
Attach the circulating pump to the bottom of the preplumbed suction assembly. Make sure that the pump union o-ring is seated properly prior to installing (Fig 24).



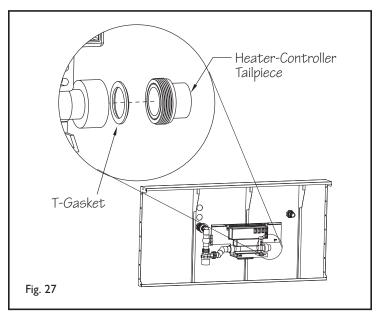
Next attach the pump-to-heater pre-plumbed assembly to the pump as shown. Again, make sure that the pump union o-ring is seated properly prior to installing (Fig 25).



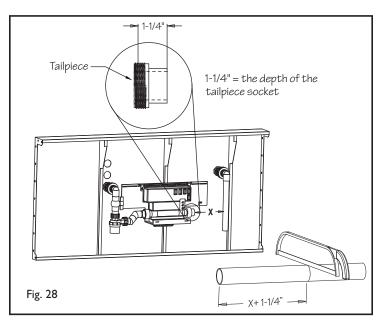




This next step is best done with a helper. Align the heater-controller with the pump-to-heater pre-plumbed assembly. Make sure the T-gasket is seated properly prior to tightening the heater-controller union nut. The raise section of the T-gasket will sit in the groove of the tailpiece. Once the heater-controller is securely attached to the plumbing, makes sure that it is level. Use the provided self-drilling screws to attach the mounting board to the Z-brace (panel stiffener). Use a minimum of 2 screws. When the mounting board hits more than one Z-brace, attach with two screws along the top. In the instances when it lands on only one Z-brace, attach with one screw along the top and one screw through the bottom slotted tab as shown in Figure 26.



At the outlet of the heater-controller attach the single heater-controller tailpiece. Again, make sure the T-gasket is seated properly prior to tightening the heater-controller union nut (Fig 27).

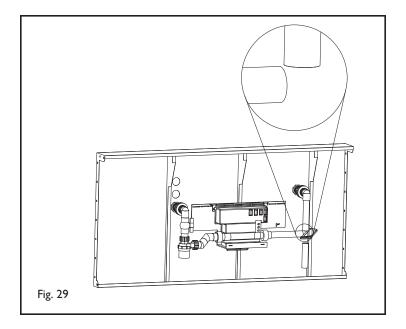


Attach the pre-plumbed return assembly to the Water Quality System thru-wall. Make sure to wrap Teflon tape around the threads of the adapter that is glued into the thru-wall. The union of the pre-plumbed return can be taken apart to make this step easier.

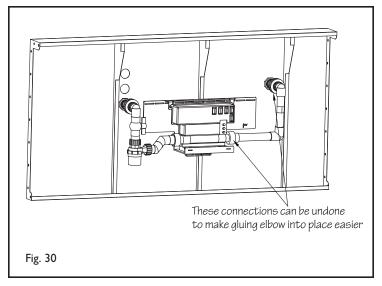
Take a measurement from the edge of the heater-controller tailpiece to the vertical pipe of the pre-plumbed return assembly. Add 1-1/4" to that dimension (the 1-1/4" is the depth of the tailpiece socket. Transfer this total dimension onto the provided flexible PVC and cut it to that length. Use the provided PVC cleaner and cement to glue the cut pipe into the tailpiece socket. Make sure to apply cleaner then cement to both faces of the glue joint.

# 14. Water Quality System (cont.)

Cut the excess pipe off of the pre-plumbed return assembly so that the end of the vertical pipe is just above the top most edge of the horizontal pipe (Fig 29).

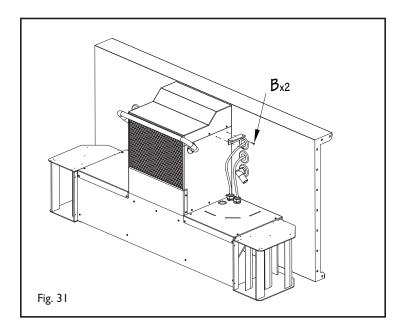


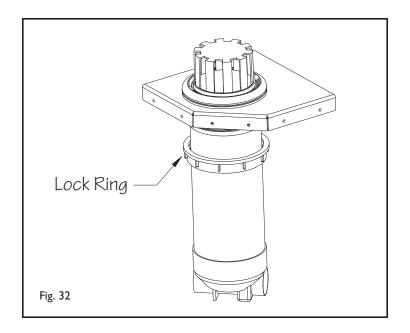
Finally, glue the slip x slip elbow onto both the vertical and horizontal pipe. Make sure to apply PVC cleaner then cement to both faces of each glue joint. Either the heater-controller union or pre-plumbed return assembly union can be broken to make this step easier (Fig 30).



## 15. Skimmer-Filter Installation

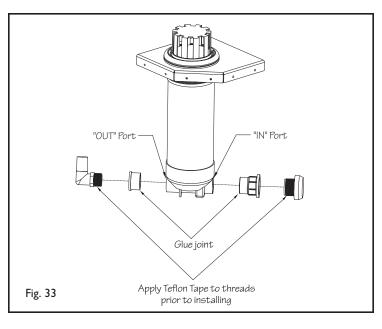
If not done so already, attach the PVC angle bracket to the right side of the propulsion housing with the provided screws (Fig 31).



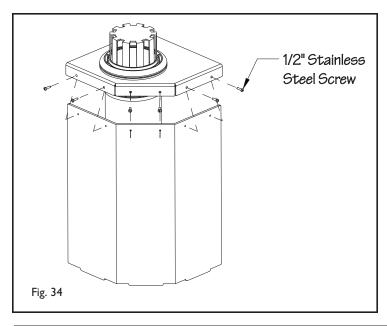


### 15. Skimmer-Filter Installation (cont.)

Remove the lock ring from the filter body. Loosely place the skimmer body into the shroud top. Re-install the lock ring. The lock ring should be tightened to the point where the skimmer body is seated firmly against the shroud top, but loose enough so that the skimmer body can rotate (Fig 32).



Glue the PVC straight nut into the "IN" port at the bottom of the skimmer body. Glue the 1-1/2" slip x 1-1/2" female pipe thread adapter into the "OUT" port. Then thread the suction fitting into the straight nut and thread the insert elbow into the adapter (Fig 33).

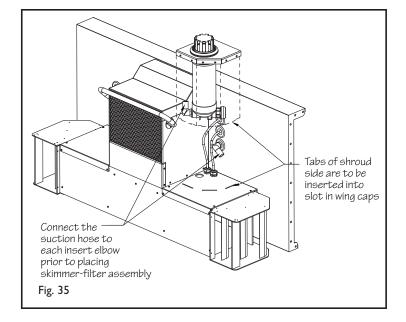


Attach the skimmer-filter shroud side to the shroud top with the provided screws as shown. The elbow attached to the bottom of the skimmer is to be closer to the housing. Spin the shroud top (pre-attached to the skimmer-filter) as necessary (Fig 34).

## 15. Skimmer-Filter Installation (cont.)

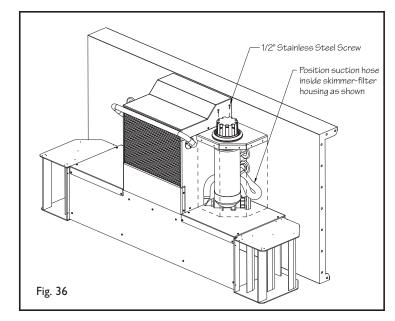
Connect the provided suction hose to the two insert elbows (1 attached to the skimmer-filter and 1 attached to the thru-wall fitting). Secure the hose with the provided plastic hose clamps (Fig 35).

Note: If installing into a Dual Propulsion Pool, then the skimmer-filter assembly will be attached to the right propulsion housing.



Next, insert each of the tabs in the bottom of the shroud into its corresponding slot in the wing cap. The excess hose should be place behind and to the right of the skimmer-filter body.

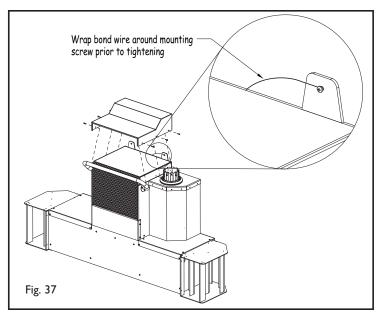
Secure the shroud top to the PVC angle bracket with the provided 1/2" stainless steel screws (Fig 36).



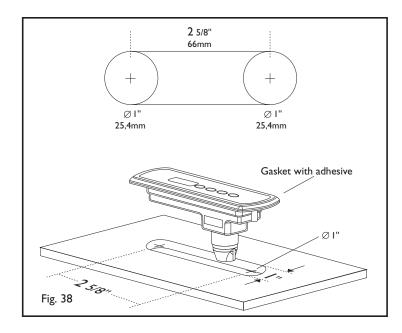
Restart filling the pool. Once the water level is just below the Housing Lid, temporarily remove the Housing Lid. Use the provided 1" self-drilling screw to attach the housing to the pool wall. Make sure to wrap the bond wire (exiting the top of the housing) around one of the screws prior to tightening (Fig 37).

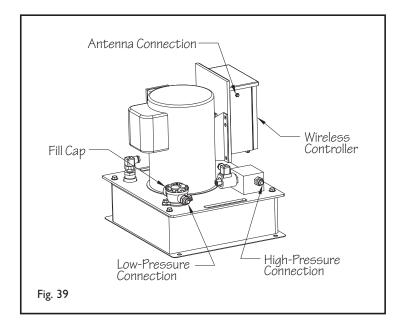
If you have purchased a Raised Rear Bench Seat, then that option should be installed at this time as well. Refer to the Raised Bench Seat for a 48" & 54" Pool for more detailed information.

After the Skimmer-Filter has been installed, continue filling the pool until the top row of the honeycomb grill (of the propulsion housing) has been covered.









#### 16. Keypad

Additionally, the placement of the keypad needs to be considered. The majority of our customers place the keypad in the coping at the front of the pool. However, the keypad can be placed anywhere in the pool coping or the outside vertical finish. The only constraint is the length of the cord between the keypad and the poolside water quality system.

When installing the keypad, drill two 1" diameter holes at 2-5/8" from center to center. Then with an appropriate saw, cut out the piece between the two holes.

Next, peal off the adhesive protection on the backside of the keypad. Feed the keypad cord through the cutout. Firmly press the keypad into place. Then, feed the bracket through the cord and push the bracket all the way up to the underside of the coping. Make sure that the bracket is placed over the two threaded studs on the back of the keypad. Once that is completed, thread the two wing nuts over the threaded studs and hand tighten them.

If you are going to have your keypad in a horizontal surface that is deeper than the threaded studs, then simply cut your holes, remove the adhesive protection, feed the cord into the hole, and firmly press the keypad into place. When picking a location for the keypad in your finish work, it is important to make sure it is within 10' of the Heater/Controller.

#### 17. Power Unit

The power unit should be placed on flat and level surface. If the power unit is to be placed outside, we recommend selecting our Outdoor Power Unit with Weather Guard to protect it against everyday elements. Whether placed indoors or outdoors, this is an air-cooled unit and must have ample ventilation. Therefore, a minimum of 12" of air spaced must be provided on all sides of the power unit. In addition, the power unit needs to be check periodically for maintenance and should be accessible.

The power unit is heavy; take care when placing the power unit.

Once the power unit is in place, connect the run hoses. The low-pressure hose, lowest hydraulic hose on the front panel, gets connected to the connection on the black fill cap. The high-pressure hose gets connected to the fitting on the high-pressure manifold (Fig 39).

Endless Pools, Inc. supplies a special vegetable-based hydraulic fluid created for this application and this equipment. Do not use a substitute hydraulic fluid. Extra hydraulic fluid is provided for longer hose runs. Any excess fluid should be retained for future use.

Make sure that the power is turned off to the power unit. Remove the fill black fill cap and remove the oil filter by lifting it out of fill opening. Use the provided paper funnels and fill the reservoir to with in 2" of the top. Once filled, replace the oil filter and ensure that it is seated properly before putting the fill cap back on. If you have selected a longer run hose, we have provided extra fluid. In this case, turn the unit on and let it run for one minute to fill the run hoses. Turn the power off, remove the fill cap and oil filter, and add fluid as needed. Again, you want to fill the reservoir to within 2" of the top.

The power unit controller comes equipped with an automatic timer shutting off the system 30 minutes after receiving its last command. Because the controller "remembers" the last speed at which is turned off, it will return to that same pace when it is turned back on.



#### 18. Electrical Wiring Connections - 60hz

The following is for the U.S. and countries with a similar power supply.

One 220 volt 30 amp GFCI circuit is all that is required to operate the Endless Pool. A minimum of 10AWG wire should be used for all field wiring. All connections should be made by a licensed electrician. An electrical whip to connect the power unit to the heater/controller is provided. The length of this whip is based on the length of your hydraulic hose specified in your order

We recommend that you have your electrician install a shut off within 5' of where you intend to place your power unit. You can have your electrician install this prior to your pool being delivered.

Power is supplied to the system by connecting the existing whip on the power unit control box to the shut off installed by your electrician.

Power the poolside heater controller by connecting the whip supplied to both the power unit control box and the heater-controller through the appropriate knockouts in these respective units. Specifically, inside the power unit control box, connect the black wire to terminal R2 on the line (left) side of the contactor, connect the red wire to R3 on the load (right) side of the contactor, connect the green wire to the ground bus bar, and the white wire junctions with the white wire coming from the shut off using a wire nut.

Connect the heater controller by attaching the black wire to the L1 terminal, the red wire to the L2 terminal, the white wire to the N terminal, and the green wire to the G terminal.

#### 19. Electrical Wiring Connections - 50hz

The following is for the U.K. and countries with a similar power supply.

Two 220 volt 30 amp RCD circuits are required to operate the Endless Pool. A minimum of 10AWG wire should be used for all field wiring. All connections should be made by a licensed electrician.

We recommend that you have your electrician install one shut off within 5' of the location of your hydraulic power unit and another shut off to accommodate the heater/controller installed on the front panel. You can have your electrician install this prior to your pool being delivered. Please consult all appropriate national and local codes.

Power is supplied to the hydraulic system by connecting the existing whip on the hydraulic power unit control box to the shut off installed by your electrician.

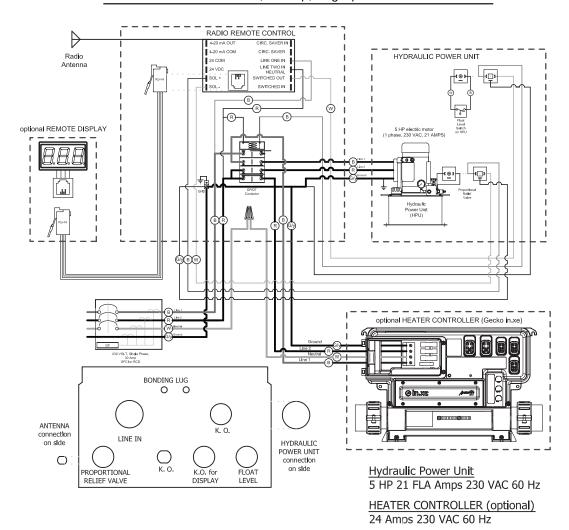
Power to the poolside heater controller is supplied by connecting the second shut-off and the heater-controller through the appropriate knockouts in these respective units. This must be hard wired.

Once the Water Quality System has been installed and your electrician has completed the wiring, you should install the Water Quality System Cover. Place the cover over the entire water quality system. Use the screws provided to attach the cover to the mounting plate.

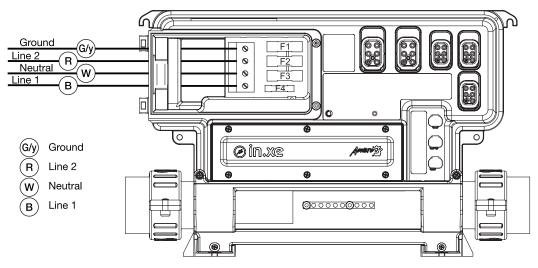


# Wiring Schematic for 60hz Power Unit

230v, 24 amp, single phase



# Wiring Schematic for 60hz Heater/Controller

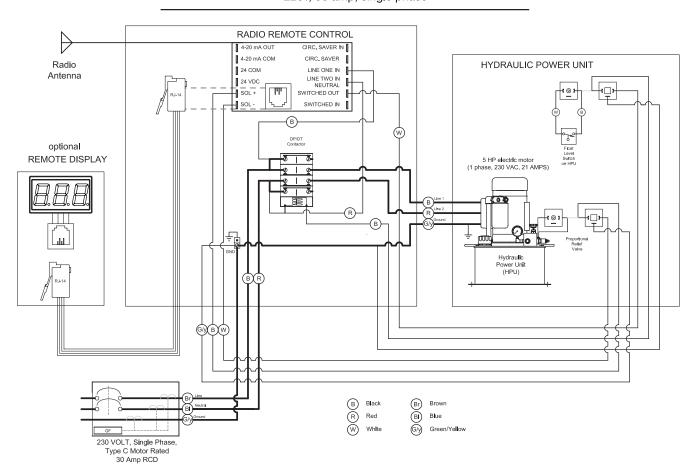


HEATER CONTROLLER (Gecko in.xe)

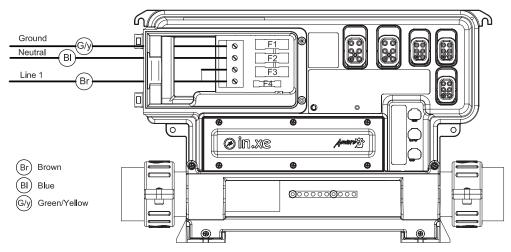


## Wiring Schematic for 50hz Power Unit

220v, 30 amp, single phase



# Wiring Schematic for 50hz Heater/Controller



HEATER CONTROLLER (Gecko in.xe)



#### 20. Bonding and Grounding

All of the electrical equipment that we supply is UL or CSA approved and must be installed in accordance with local electric codes by a licensed local electrician. Bonding and Grounding is an important part of that process. All electrical components have bonding lugs and should be bonded together and to the steel pool panels. A bonding conductor shall be solid copper not smaller than 8 AWG and may be insulated, covered or bare. If new construction is involved where reinforcing rods are installed in the concrete under or adjacent to the pool this should be included in the bonding circuit. Each of the pieces of equipment should be separately grounded.

A #8AWG bare copper wire and bonding kit will be provided in the hydraulic hose/electrical whip box. This wire will be the same length as your electrical whip. Connect this wire to your power unit and run it, with your hydraulic hose and whip, to the front of the pool. Inside the bonding kit there will be a machine screw and nut, a bonding lug, and a drill bit. Attach the bonding lug to the Z brace just under the heater controller. Feed the bonding wire through the bonding lug on the Z brace, through the opening in the heater controller mounting board, and connect it to the bonding bar on the heater controller.

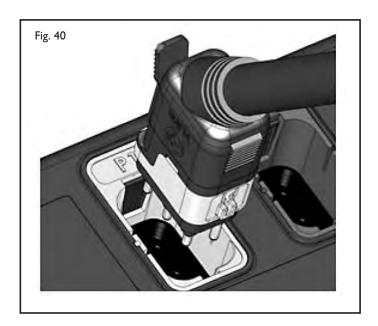
### 21. Heater-Controller Plug-In Connections

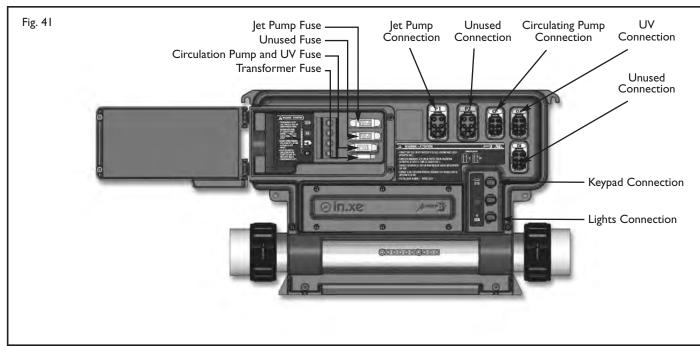
The Heater-Controller (In.xe) features in.links connectors with colored and tagged polarizers. This plug and connector technology has been specifically designed for easy and safe assembly. The tags are interchangeable depending on the output; the polarizers are designed to avoid misconnections.

In.link connectors are easily and conveniently accessible from the front of the Heater-Controller offering a wide range of possible connection configurations. In.link connectors come in 3 sizes (HC, LC and low voltage) for all types of inputs and output devices.

They all include an integrated latch that keeps them safely in place and provides audible and tactile feedback when properly connected.

Finally, colored and tagged polarizers provide a definite advantage in easily configuring output devices. Refer to Figure 41 for specific connections for the provided equipment.





#### 22. Water Quality System Isolation Cover

Now that the Water Quality System has been installed and your electrician has completed the wiring, you should install the Water Quality System Cover. Place the cover over the entire water quality system. Use the provided 1/2" screws to attach the isolation cover to the heater controller mounting board (Fig 42).

#### 23. Hydraulic Hose Connections

Install the long hydraulic hoses between the Power Unit and hydraulic hoses at the front of the pool. These hoses are supplied by Endless Pools, Inc. to the length specified. Often they are not shipped with the pool as the exact length is unknown at the time of shipment. Please order these hoses a week before they are needed to allow shipment by UPS ground. Two hoses up to 25 feet in length are supplied at no additional charge. It is best to use hoses close to the length you need rather than simply going with the standard 25 feet. There is an additional charge for lengths in excess of 25 feet.

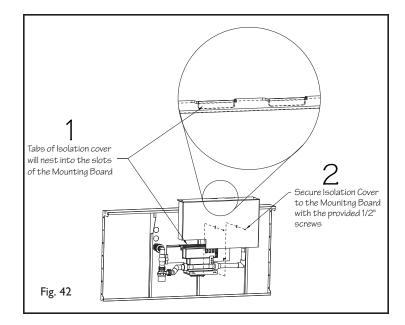
Remove the protective plugs and connect the 2 hydraulic hoses to the 2 ports on the Power Unit and tighten firmly. Do not over-tighten. The hose connecting to the fill cap on the Power Unit is the return (low pressure) hose, which gets connected to the lowest hydraulic hose at the front panel. The high-pressure hose, which is connected to the fitting on blue high pressure manifold, connects to the higher hose at the front of the pool\*. Adapters have been provided in the hydraulic hose/electrical whip box to connect the hydraulic run hose to the hoses penetrating the front panel. The hoses that go through the panels are a smaller diameter than your run hose, you will find adapters in the Electrical Whip box to make these connections. If the hoses you ordered are too short and you need longer hoses, call Customer Service. Extra care should be taken that these hoses are cushioned when they pass by anything that could reverberate. This will ensure a quieter installation. Use simple pipe insulation and clips for this purpose.

\*See Figure 45 on page 20.

#### 24. Optional Antenna Extension

Your swim current remote operates by radio waves. Should the power unit be placed far away from your pool, the remote control may not operate efficiently. In order to correct this, you should install the Antenna Extension Kit.

If your antenna has already been installed, disconnect it from the side of control box. Install the antenna extension wire finger tight onto the control box connection. Once the antenna has been positioned closer to the pool, connect the other end of the extension wire to the antenna. Should you need a longer wire than what was provided, you can purchase coaxial cable locally.





# 25. Optional Retractable Security Cover Systems

Our most popular option and strongly recommended, the Retractable Security Cover system protects children and pets from the pool while keeping in temperature and humidity. With some installations, suitable access for this roll-up cover system is complex and should be discussed with an Endless Pool design professional during the planning stage. The Supplemental Guide describes the cover installation more fully. If your pool is to be outside, we can provide you with a cover pump to remove any rain water that may accumulate.

The most popular configuration for this system is to have the cover roll off the rear of the pool. Other alternatives are possible if space is limited. These are discussed in more detail in the Supplemental Guide. The kit includes the roller mechanism for the width of pool purchased, appropriate lengths of track, an aluminum leading edge, and the rugged fabric which floats on the water surface suspended between the parallel tracks. Two steel brackets to mount the roller mechanism at one end of the pool are available.

The optional Retractable Security Cover system is manually powered. We believe that this system is optimal for our compact pool and when installed correctly provides a simple means of covering the pool.

The aluminum track on either side of the pool is a requirement of the retractable security cover option. Covering this track is possible but increases complexity and will add to the cost of installation.

#### Optional Automatic Retractable Security Cover System

Offered in two versions, the Automatic Retractable Security Cover System is rapidly becoming one of our most popular options. Operated with the turn of the key, the cover retracts easily making it ideal for people who want the convenience of automation or lack the strength to operate one manually.

The Below Deck version can be fully integrated into any custom

finish. The cover mechanism must be mounted at the front of the pool. Please refer to the Supplemental Guide for more information on this option.

The Above Deck can be mounted at either the front or the back of the pool and is compatible with any of our coping options. The Above Deck version comes with a convenient bench cover offered in a variety of colors to compliment any decor. Please refer to the Supplemental Guide for more information on this option.

#### Optional Solar Blanket Roll Up System

Endless Pools, Inc. supplies a Solar Blanket for all Endless Pool sizes, if the Retractable Security Cover has not been chosen. For those who wish it to serve as a permanent cover, a simple PVC pipe may be used to roll up the blanket for storage when the pool is in use. For this purpose, we supply PVC clips and PVC pipe long enough for your pool width. Depending on the width of the pool the PVC pipe will come in one or two pieces with a coupling attached to one end of the one piece of pipe. Using the PVC cleaner and PVC cement you received in your plumbing kit, glue the second piece of pipe into the open end of the coupling. Alternatively, the roller mechanism from the retractable security cover may be used in conjunction with a length of 3" diameter PVC pipe to roll up the blanket. This optional solar blanket roll up system is available from the Endless Pools, Inc. Customer Service Department.

#### 26. Optional UV Sanitizer

Ultra-violet water purifiers provide a chemical-free method of maintaining your pool by destroying organic pollutants as the water passes through the treatment chamber. This reduces the need for chemical sanitizers such as chlorine. Our UV system is particularly suitable for users who are sensitive to the usual swimming pool disinfectants, heavy metals from ionic purifiers or allergic to chlorine.

UV still needs to be used in conjunction with a sanitizer to "burn off" the dead organic matter killed by the UV system. We recommend simply using trace amounts (0.5 - 1 ppm) of regular household bleach, such as Clorox or other generic brands. This level is lower than the EPA recommended chlorine level for drinking water.

# 27. Optional Treadmill (Manual or Hydraulically Driven)

Turn your Endless Pool into a complete home gym with the addition of an Aquatic Treadmill.

Use the treadmill with the current on or off to vary the intensity of your walk or jog. Take it to the next step and use the aquatic treadmill to cross-train in the Endless Pool. Alternate between swimming and walking or jogging to get a full body workout! Our new Aquatic Treadmills offer a spacious 20" wide belt for walking or running. Both manual and hydraulically powered versions are available. Our underwater treadmills are typically installed in pools with deeper panels.

#### 28. Optional Hydrotherapy Jets System

By providing a supplementary pump that is operated by the heater controller and using the secondary suction and four venturi-type jets through the wall of an Endless Pool, the user can enjoy the therapy benefits of jets in addition to the variable speed swim current. Installation is relatively straightforward but roughly doubles the plumbing work required. The kit provided by Endless Pools Inc, includes everything necessary with the exception of the 1-1/2" schedule 40 PVC pipe. Detailed instructions are included in the Supplemental Guide along with a typical layout drawing. When jets are installed it is important to leave access to the outside of the pool panel for service. The holes for the jets should be cut before installing the liner. If the pool is located outdoors where freezing is an issue, care must be taken with the jet system plumbing. Additional insulation should be considered under these conditions. Call Customer Service with any questions about this limitation.

#### 29. Optional Underwater Lights System

Underwater Lights are an important aesthetic option. Typically located on either the side or the end wall of the pool, these two lights thread into in niches that are installed after the liner is in place. The holes for these niches are cut using the holesaw provided before the foam and the liner are installed. Directions come with the lights which are packaged in the pool crate. These directions are also found in the Supplemental Guide. Each light consists of a dry niche which serves as a porthole. The low-voltage light threads into this porthole outside the pool. For outdoor installations a weather resistant can is provided for added protection. A 22' cord connects these lights and plugs directly into the heater controller. The lights are then operated by the pool-side controls.



#### **30. Optional Corner Step**

To assist with access to the Endless Pool, optional Corner Steps are available inside the Endless Pool in any of the four corners. For a more complete discussion about access to an Endless Pool please refer to the Planning Guide. These optional steps are approximately 11" high and are secured to the internal Water Return Channel. They are easily installed using a phillips screwdriver. If you wish to order them after the pool has shipped, contact the Customer Service Department and they will ship one to the address provided. The optional Corner Step is described more fully in the Supplemental Guide.

#### 31. Optional Interior Stair

For those needing an easier route into the pool our Optional Interior Stair provides easy access. Typically installed with fully inground Endless Pools, the Interior Stair allows the user to gradually enter the water from deck height. Interior stair configurations depend on the panel height purchased Optional Interior Stairs are described more fully in the appropriate Supplemental Guides. The Interior Stairs should be ordered with the pool to avoid substantial additional freight charges due to the size and weight of the box needed to ship the steps.

#### 32. Optional Swim Mirror

The Swim Mirror helps with stroke technique and makes your swimming workout fun. The Swim Mirror, described more fully in the Supplemental Guide, is made from durable stainless steel and is attached with three stainless steel screws which are already attached to the housing just below the swim propulsion housing. When a deeper pool is selected, make sure that the shallower area extends at least 13" beyond the front Water Return Channel to accommodate the Swim Mirror. Swim Mirrors are easily sent by UPS ground and may be ordered later.

#### 33. Optional Synthetic Coping System

An ideal solution for indoor installations, the Synthetic Coping System finishes off an Endless Pool quickly and easily. Typically used when the pool is installed partially or fully aboveground,

the Optional Synthetic Coping System provides a finished 9-3/4" wide waterproof edge to your pool. Made of synthetic boards and corner pieces with shiplapped joints, the system comes in a variety of colors. Please refer to Supplemental Guide for additional installation information.

#### **Operations and Maintenance User's Manual**

Included with your Endless Pool and packaged with your Water Quality System (WQS) are products to help with start-up and on-going maintenance. These include:

- (1) Container calcium hardness increaser
- (1) Container water clarifier
- (1) Container pH decreaser
- (1) Container pH increaser
- (1) Container total alkalinity increaser
- (1) Container vinyl cleaner
- (1) Pool patch kit "wet"
- (1) Container stabilized chlorine (outdoor pools)
- (1) Nature 2 cartridge
- (1) Spa Wand
- (1) Test kit

#### I. Overview

The Endless Pool is a combination of several independent systems. The "swim current system" is comprised of a 16" propeller that rotates at variable speeds and is adjusted by remote control. The operation of the swim current system is described later in this start-up section. A second system maintains the water quality by circulating, filtering, heating, and purifying the water. This "Water Quality System" (WQS) is comprised of the pump, filter, Nature 2 purifiers, and heater. The Hydrotherapy jets and a supplementary pump comprise a third system.

Endless Pools will provide toll free technical support during the installation and start-up of your swimming machine. We encourage you to become familiar with the equipment and components, in order to properly maintain the pool.

#### 2. Filling Your Endless Pool

#### Your Pool Water

As with any swimming pool, an Endless Pool requires water chemistry monitoring. The water quality system, which includes automated recirculating, heating, filtration and purification, does most of the work for you. However, balancing and maintaining your pool water is essential to the life and health of your equipment.

#### Your Source of Water

Endless Pools, Inc. recommends testing a sample of water before you begin to fill the pool. Doing so will give you an idea of how suitable your water source is for swimming pool use. Testing the water can be done by using your Taylor test kit. A local swimming pool supply store can also test your water at a minimal charge. Take a copy of the "Water Chemistry Testing Log" with you.

#### Well Water

Certain geographic areas are high in mineral content. For pools where well water is to be the water source, strong consideration should be given to having water tanked in. Well water often has high iron, calcium, and mineral content which is not ideal for your swimming pool. If well water is the only available source, please call our Customer Service Department, or seek advice from a local pool store.



#### "Hard" Water and Water Softeners

The phrase "hard" water refers to having high levels of calcium in the water. Many homes that have "hard" water will often have a water softener installed in their homes that lowers the level of calcium in the water. For ideal water conditions in a vinyl liner pool, the calcium hardness level should be between 180-250 ppm. Please call us to discuss your options if you have a water softener and/or high calcium in your water supply.

#### Nature 2

Sanitation of your pool water is partly accomplished by placing one Nature2 purifier into the filter-cartridge at the front of your pool. The Nature 2 system included in your pool kit significantly reduces the amount of chlorine you'll need to use by adding silver and copper to the pool, which will kill bacteria and algae in the water. This cartridge should be replaced about every four months.

#### Oxidation and Chlorine Requirements

Nature2 works well as a pool sanitizer, however it does not oxidize or "burn-up" small particles of debris in the pool. Maintaining a minimum level of 0.5 ppm free chlorine in your pool at all times is necessary. Adding 1/2 cup of Clorox a day will add about 0.5 ppm of free chlorine to a standard sized pool. How quickly that chlorine is consumed depends upon water temperature, bather load, and the amount of direct sunlight the pool receives.

#### Chlorine Stabilizer and Outdoor Pools

Your Taylor test kit comes equipped with testing procedures for cyanuric acid. Cyanuric acid is a chlorine stabilizer, meaning it protects chlorine from getting broken down by sunlight. If your pool is located outdoors, we recommend using the granular form of stabilized chlorine (Should have an active ingredient of sodium dichlor) instead of Clorox. Another option would be to supplement Clorox by adding cyanuric acid. Either method will necessitate testing for cyanuric acid every two weeks. These chemicals are readily available at any pool supply store.

#### Chlorine Stabilizer and Indoor Pools

Many customers are sold a stabilized chlorine product for use in their indoor Endless Pool. Endless Pools would not recommend this practice, as Clorox bleach is ideal for this setting. Using a stabilized chlorine source is more expensive, and it also requires the periodic testing for cyanuric acid levels. If the level gets too high, it can render the chlorine ineffective, and it may necessitate the partial draining of the pool in order to lower the levels.

#### Alternatives to Chlorine and Nature2

Although some alternative Sanitization systems can be used with an Endless Pool, the following precautions must be followed:

- Under NO circumstances can salt chlorine-generating systems be used in an Endless Pool.
- Bacquacil systems damage clear plastic products.
   Light lenses and pump strainer lids will crack.
- Bromine can be used, but not in conjunction with Nature2.
- Please call Customer Service with any questions about alternate systems.

#### 3. Pool Equipment Start-Up & Operation

The pool is full when the water level completely covers the honeycomb grills where the current is produced. A water level 1/2" or more lower than this can cause air to get pulled through the skimmer-filter and into the WQS plumbing lines. This can lead to problems with the filter, and can also cause your heater to work intermittently. A water level 1" or more higher than the top of the grills can lead to water getting splashed out of the pool.

Once the pool is full and all connections are made, the water quality system can be started. Verify that the Nature 2 cartridge is installed inside the skimmer-filter cartridge.

When power is first introduced to the system, the heater-controller will go through a boot-up cycle (which can last 2-5 minutes). During this boot-up cycle it is important that no buttons on the keypad are pushed. At the end of the boot up cycle the keypad should display the temperature of the water.

If the keypad is flashing, "FLO" then air may need to be bled out of the system. Turn the power off and slowly unthread one of the pump unions, allowing any air to escape the system. When bleeding the system you will loose some water so it is important to take this into account. Once the air has been bled out, retighten the union.

After the system is turned on and the heater-controller has verified proper water flow (to avoid heater activation in dry conditions), the heater will automatically turn on to reach and maintain the water temperature set point.

Your heater-controller has been programmed to run your circulating pump continuously, meaning that your pool is receiving automated circulation and filtration (through the skimmer/filter) 24 hours a day. The temperature of your pool is controlled by the up and down keys on your keypad (Refer to the following section for more information on the heater-controller features).

The Heater-Controller has a freeze protection feature called Smart Winter Mode. Smart Winder Mode senses the ambient temperature around the heater-controller and turns on the optional hydrotherapy jet pump as the temperature drops. The colder the temperature, the more frequently the pump will turn on.

The Smart Winter Mode indicator light (see Keypad Function section) is illuminated when this feature is activated.

The heater-controller also is programmed to turn the optional hydrotherapy jet pump on 4 times daily, for 60 seconds.

#### Heater-Controller

The in.xe is a heater controller used by Endless Pools to control the following water quality features:

- Water temperature can be set between 59°F and 104°F. Default set point at 84°F. The set point is changed with the up and down keys.
- The Circulating Pump, CP, is always on. The heater can only turn on when CP is on.
- Pressing the light key will turn lights on/off with an on time of 120 minutes.
- Optional Pump #1 is for a single speed Jet pump. Pressing the first key turns pump 1 on/off, with a run time of 30-minutes. The heating element is turned off when Pump #1 is activated. To aid in filtration there are 4-purges per day.
- Optional UV always on except when Pump #1 is on and remains off or 30-minutes after pump #1 is turned on.
- Holding first key for 5-seconds will turn off all devices for 30 minutes to allow for servicing. Pressing again will return to normal operation.

# (in.xe) UL/CSA electrical specifications:

Input rating: 120/240 VAC

(2-phase required, with neutral) 48 A maximum, 60Hz. Software limited to 24A. Install on a 30A GFCI circuit.



#### Output ratings:

Output	Voltage	Current	Typical Device
Out 1	120/240V	17FLA	Pump 1
Out 3	120/240V	0.8 A	Circulation Pump(CP)/Blower
Out 4	120/240V	1 A	Ozone Generator
Out 5	120/240V	5 A	Audio/Video device
L1	Light, 12VAC, 0.1 A		
CO	Communications port *		
<u>C1</u>	Top side controller *		

\*CO: Comm.connector (in.stik).

#### **UL/CSA Standards:**

UL 1563 Fifth Ed.

File: E182156

CSA No. 22.2 - 218.1-M89.

#### **TUV Standards:**

EN/IEC 60335 - 2 - 60

EN55014-1

EN55014-2

EN61000-3-2

EN61000-3-3

#### **Circulating Pump**

The circulating pump has been provided with an integral dry run protection thermostat feature, that turns the pump off when the pump runs dry (thermostat off at 212°F + 10°F). If left unattended, the thermostat will automatically reset within a relatively short amount of time when the unit cools down, thereby allowing the pump to again begin operation (at 176°F + 13°F). Depending on the system conditions, many times one or two of these off/on cycles will correct an air bound dry run condition by itself with no harm done to the pump, thereby allowing continued trouble free operation. However, if the off/on cycling persists then measures should be taken to correct the problems in the circulation system causing the on/off cycling.

Floating Thermal Cover

Endless Pools, Inc. provides a lightweight cover for the Endless Pool, if a retractable security cover has not been purchased. This cover floats on the water surface, insulating the pool while preventing evaporation. Consistent use of this cover will keep the water cleaner, save energy, and help control humidity. The cover should be completely removed from the water before the machine is used. With standard width Endless Pools (7' inside dimension) the cover is shipped in a box with clips along with a 1-1/4" PVC pipe. Replacement covers are available from our Customer Service Department. The cover, once cut to size and installed on the PVC pipe, rolls out onto the water surface.

#### Nature 2 Installation

The Nature 2 purification system will be placed inside of the filter cartridge. A retention strap has been provided to prevent the Nature 2 (slotted yellow cartridge) from falling out of the filter.

Remove the Nature 2 and retention strap from its packaging. Pass the strap through the Nature 2 so that the locking mechanism of the strap is facing up.

Loop the strap over onto itself and interlock the strap end into its locking mechanism. The strap end should be inserted into the locking mechanism no more than 4-5 positions.

Next, pull the cylindrical floating cage out of the filter body. Remove the filter cartridge from the filter body inside the pool, by grabbing the top and unthreading the cartridge.

Insert the Nature 2 into the opening in the bottom of the cartridge so that the retention strap is facing down.

Reinstall the filter cartridge and then place the floating skimmer cage over top the cartridge.

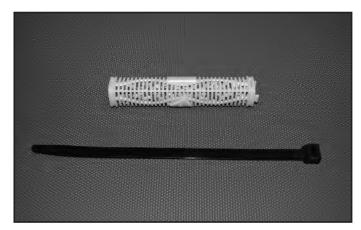


Fig 51

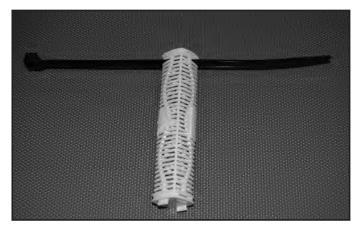


Fig 51



Fig 51



#### Every two months:

Remove and clean the filter that is located inside your pool (attached to the propulsion housing). First, turn the Water Quality System off by pressing and holding the 1 Key (see section Keypad Functions) until the display reads, "OFF." Then remove the cylindrical filter cage from the filter body. Grab the filter inside and unthread it from the filter body. Once out, the filter can be cleaned by simply rinsing it off or by using a filter-specific detergent. If your filter is being cleaned with a detergent, then remove the Nature 2 from the cartridge. Insert the cleaned filter back into the filter body and thread into place. Reinstall the filter cage over the cartridge. The circulation pump will automatically turn back on after 30 minutes.

After several uses the cartridges will have to be replaced. Replacement cartridges can be purchased on our Customer Service website, www.myendlesspool.com.

#### 4. Balancing the Pool Water

Test your pool water now with the kit provided and/or take a sample of water to a local pool professional for testing. The test kit provided by Endless Pools tests for chlorine, pH, total alkalinity, calcium hardness and cyanuric acid. While the test kit may first seem intimidating, simply follow the instructions on the underside of the test kit lid. These instructions walk you through each of the tests step by step, and they are color coded with the appropriate reagent bottles to use for that test.

When performing the water quality tests, write down your results on the log sheet provided at the end of this bulletin. We would strongly urge you to make copies of these blank logs for use in the future. Any observations, chemical additions, or actions taken should also be noted. While it may seem a bit tedious, all of this information will prove invaluable in the event of a water quality problem, or when you go to make similar adjustments to the water chemistry in the future.

During this start-up period, which will last a few days, you will need to "Balance" the pool water by following the instructions listed below. After this initial start-up period, the testing procedures and emphasis are a little bit different, and they are explained in the "Maintaining your Endless Pool" instructions a few pages later in this manual.

The following steps need to be followed when the pool is first filled, as well as anytime the pool is partially drained and refilled. They will walk you through testing and adjusting the factors affecting the "balance" of the water i.e., the water's total alkalinity, pH and calcium hardness levels.

The level of chlorine inside the pool, as long as it is not above 5ppm, will not significantly affect the following tests and procedures used to balance the pool water. Therefore, if there is no chlorine in the pool at this time, add some. Add 1-2 cups of liquid bleach (any brand is fine as long as it does not have an added scent to it) to an indoor pool. If you have an outdoor pool, add the appropriate amount of granules out of the bag of "stabilized" chlorine. Test for chlorine in a day or two and add more if necessary.

#### 1) Balance Total Alkalinity (TA)

Ideal reading: 100ppm
Acceptable range: 80-120ppm
Raise with: Sodium Bicarbonate (TA increaser)
Lower with: Sodium Bisulfate (pH decreaser)

#### Method of chemical application:

- Adjusting the level of TA in the pool requires that the chemical be "slugged" i.e. pour chemical in four different spots around the pool with the water calm. Let the water remain calm until the next filtration cycle.
- Retest TA and adjust again if necessary.
- Add less chemical than you think is necessary to effect the desired change. Keep track of how much chemical it took to make that change.

#### Notes.

Many regions of the country and world will have water with a TA higher than our recommended range. In a lot of cases, it will be desirable to leave the TA alone as any adjustment to it will also tend to affect the pH. The TA is mainly serving as a buffer for the pH. If it is above 120ppm, but lower than 200-250ppm, leave the level alone. It will simply over-stabilize the pH, which is not a problem, especially if the pH is within range or close to being within range.

If the TA is lower than our recommended range, though, we would recommend increasing it to at least 80ppm. Once again, the TA serves mainly as a buffer for the pH and if the TA is too low, the pH level in the pool can change very rapidly causing bather discomfort and damage to the pool and pool equipment.

Once the TA is within a tolerable range, move on to adjusting the pH in the pool. You should find that the TA will be slow to change—for this reason, test for it once a week as detailed in the "Maintenance and Use of your Endless Pool" instructions found later in this guide.

#### 2) Balance pH

Ideal reading: 7.5
Acceptable range: 7.4-7.8
Raise with: sodium carbonate (pH increaser)
Lower with: sodium bisulfate (pH decreaser)

#### Method of chemical application:

• Measure out and pour your dosage of chemical directly into the swim current. Afterwards, make sure you wash some water on the propulsion housing to ensure that no granules are resting on the benches. Test and apply more chemical as necessary.

#### Notes.

It is very important to keep the pH within range. If the level is too low, severe damage can occur to the pool liner and the submerged hydraulic motor, and the pool equipment. If the level is too high, damage can occur to the liner, and it can make the water prone to "scaling," when minerals and metals dissolved in the water will be dropped out of solution and on to the benches and liner. Having the pH too high or too low may cause bather discomfort in the form of eye or skin irritation.

The pH will change slowly over the course of a week or two. The number of bathers and the type of chlorine used are just two factors that will cause the pH to change. For this reason, pH should be tested three times a week and adjusted as needed. See the "Maintenance and Use of your Endless Pool" instructions found later in this guide for further details.

Once the pH is within range, move on to adjusting the calcium hardness

#### 3) Balance Calcium Hardness (CH)

Ideal reading: 180ppm
Acceptable range: 175-250ppm
Raise with: calcium chloride (calcium hardness increaser)
Lower with: water containing less calcium (softened water)



#### Method of chemical application:

• Fill a clean, five gallon bucket with pool water and dissolve the dosage of calcium into this water. Do not mix this solution with your hands. Pour the solution in to the swim current, and let the current circulate the water in the pool for a few minutes. Wait a few hours, test again, and add more calcium if necessary. Once again, always add less chemical than you think will be necessary to effect the desired change.

#### Notes:

As with TA, many regions will have higher CH than what is specified by our recommended range. If it is available, partially filling the pool with softened water will dilute the calcium content and essentially lower the CH level inside the pool. If softened water is unavailable, perhaps water tanked-in from an outside source would be the best option for you. If this not possible either, we would strongly suggest adding the "sequestering agent" sent with the pool. This chemical helps the water hold all of its dissolved materials in solution, including metals and calcium content. The main concern with having CH levels too high is that the calcium may deposit out of solution—a sequestering agent will help prevent this.

Calcium hardness will tend to slowly increase over time as water evaporates from the pool and leaves its calcium behind. Periodic testing of CH is detailed in the "Maintenance and Use of your Endless Pool" instructions below.

#### 5. How to Swim in an Endless Pool

Your swim current is operated via a remote control. Two remote controls have been provided with your system and have been packaged inside the power unit control box along with the antenna kit.

Upon initial start up you will find that unit has been set to its lowest speed; which is a barely perceptible current. You will need to press and HOLD the FASTER button to increase the speed.

The swim current is turned on through the use of a remote control, which also adjusts the speed of the current faster or slower. When changing speed, you must press and hold the buttons on the remote, then wait a few seconds for the current to adjust. Our standard pool's top speed is roughly equivalent to a 1:08 100 yard pace — a speed for expert swimmers only. Set the water speed at a comfortable level for your needs. Remember, since you don't have to turn in an Endless Pool, your workout is continuous and you will tire faster than when swimming laps in a traditional pool.

To stop swimming, simply press the on/off button on the remote. If left running, the power unit will turn off automatically after thirty minutes and can be restarted by pressing the on/off button again. Once you have found an optimal speed for yourself, you may leave the system at that setting. The controller for the swim machine is designed with a "ramp-up" feature which forces the swim machine to start slowly, but will increase to the last setting at which someone swam.

When you are first learning to swim in the swim current, it is often useful to allow yourself to drift back to the rear of the pool. Let your feet rest on the rear bench and then swim forward into position. By starting from the back, you can get a feel for just how much room you have. When swimming, center your outstretched arm about one foot from the front grill.

#### 6. Maintenance and Use of Your Endless Pool

Your Nature2 copper/silver purification system will help disinfect the water but it will not keep the pool clean and clear by itself. Nature2 is designed to be used in conjunction with chlorine. We recommend getting into a routine that involves adding a measured amount of chlorine either after you swim or at the very least every other day. This measured amount depends on pool use. One person swimming every day for 30 minutes might add 1/2 cup of Clorox after each swim. This small amount should maintain the required 0.5 to 1.5 ppm chlorine residual. Heavier use and use by children generally requires more chlorine. Adding 1 cup of Clorox bleach to a standard-sized Endless Pool raises the chlorine level by about 1 ppm. It is safe to swim in any pool where the chlorine level is between 0.5 to 3.0 ppm free chlorine.

#### Recommended Maintenance Schedule

#### Daily:

• Test for free chlorine (FC) after you swim, or at least a few times a week. Add chlorine to maintain FC levels between 0.5 - 1.5 ppm. As you become familiar with the chlorine demand for your pool, you will find that you may not have to test for chlorine as frequently in order to maintain a minimum level of 0.5ppm.

#### Twice a week:

- Check and adjust water level. Water should completely cover the honeycomb grill where the current is produced. Water 1/2" lower than this can create a choppy current and may cause your skimmer to draw air into the plumbing lines. Having the water level 1" or more higher that honey comb grill will cause more water to get splashed out of the pool, and may cause the air relief port on the top of the skimmer body to leak water.
- Test for pH at least twice a week. Broadcast (i.e. pour chemical into current) pH increaser or pH decreaser to maintain levels between 7.4-7.8.

#### Weekly:

- Test for total alkalinity (TA) once a week. Slug (i.e. pour chemical in 4 spots around pool with water calm) TA increaser or pH decreaser to maintain levels between 80-120. If TA is too high, it is usually not necessary to decrease as it merely serves as a buffer for the pH and will not cause damage in the pool.
- Test for total chlorine (TC) once a week. If the test for TC yields a result that is significantly higher than level of FC (i.e. the solution gets noticeably more pink) then you have a significant amount of combined chlorine (CC) in the pool water. Combined chlorine generates a heavy chlorine odor, and can cause bather discomfort in the form of eye and skin irritation. If you have significantly more total chlorine than you do free chlorine, then it is time to shock the pool (i.e. add enough chlorine to get the FC between 3-5ppm, but don't swim until FC falls below 3ppm). Shocking the pool should burn off the combined chlorine.

#### Every two weeks:

- Test for calcium hardness (CH) once every two weeks. Predissolve calcium hardness increaser (i.e. fill a 5-gallon bucket with pool water and dissolve calcium in bucket) then pour the solution into the current to keep levels between 175-250 ppm. If CH is too high, it can only be decreased by adding water with less calcium (i.e. softened water).
- If you have an outdoor pool, or if you use stabilized chlorine (i.e. sodium dichlor or sodium trichlor), test the cyanuric acid (CYA) level every two weeks. Maintain levels between 20-50 ppm. If CYA is above 80 ppm, the pool should be partially drained and refilled, or un-stabilized chlorine should be temporarily used in place of the stabilized. If CYA is above 100ppm, the pool should be partially drained and refilled.



#### **Every two months:**

- Remove and clean the filter that is located inside your pool (attached to the propulsion housing). First, turn the Water Quality System off by pressing and holding the 1 Key (see section Keypad Functions) until the display reads, "OFF." Then remove the cylindrical filter cage from the filter body. Grab the filter inside and unthread it from the filter body. Once out, the filter can be cleaned by simply rinsing it off or by using a filter-specific detergent. If your filter is being cleaned with a detergent, then remove the Nature 2 from the cartridge. Insert the cleaned filter back into the filter body and thread into place. Reinstall the filter cage over the cartridge. The circulation pump will automatically turn back on after 30 minutes.
- After several uses the cartridges will have to be replaced. Replacement cartridges can be purchased on our Customer Service website, www.myendlesspool.com.

#### **Every four months:**

Remove the Nature2 cartridge located in your skimmer/filter, discard, and install a new one. Because this needs to be done every four months, it is best to coordinate this around the cleaning of your filter cartridges (see "Every two months" above). New Nature2 cartridges can be purchased on our customer website, www.myendlespool.com.

#### Every five years:

 After five years of operation, we will send you a letter detailing our recommendation that the submerged hydraulic motor be changed. This procedure does require the pool to be drained to 6" in the standard-depth section of the pool. This may also be a convenient time to replace the propeller or front grill in the pool; a list of recommended and optional replacement parts is supplied with the tuneup letter.

#### As Needed:

- Clean the water line around the perimeter of the pool and the underside of the cover as needed. Body oils and mold may build up slowly in these areas and should be cleaned off periodically.
- The spa wand we provided with your pool can be used to help remove any debris that has settled on the floor of the pool floor. If you have an outdoor pool, you may need to remove front grill (from where the swim current is generated) with a Phillips-head screwdriver and clean as necessary. Replace grill before restarting machine. The Endless Pool must not be operated with this front grill removed.
- If you happen to get cloudy water, or if the liner feels slippery, it likely means that you have algae in the pool. A vinyl liner pool brush and pole may be purchased in order to wipe down all the surfaces in the pool, Increasing free chlorine level temporarily to 5 ppm will help, as will maintaining the free chlorine level in the pool at 3 ppm until the water is clear. Test the chlorine level frequently during this time.
- If you have selected the gas heater for your Endless Pool, we would encourage you to have the heater serviced on a yearly basis. This is very important if you have elected to put the gas heater outdoors or if the pool is drained for extended periods of time.

#### 7. Draining Your Endless Pool

- 1) Disconnect electrical power to all pool equipment.
- 2) Begin to drain down pool water by placing a suitable sump pump in the pool, or by setting up a siphon using a garden hose. If using a siphon, two or more hoses may be used simultaneously in order to expedite the process.
- 3) If you have full depth stairs, they should be unfastened from the panel and shifted away from the corner enough to a) remove the corner cover underneath, and b) allow the liner to pull in toward the pool a little bit. If you have a corner step, remove the step as the water level lowers to the top of that step. Once the water is within an inch or two from the top of the benches, remove the (4) corner covers located in the corners of the pool. These covers should be removed by unscrewing the (4) machine screws found on the tops of all the covers.
- 4) Continue draining pool until 6" of water is remaining in the standard depth portion of the pool, i.e. the water is half way up the benches. Do not drain further than this as the liner needs this much water in order to be held stretched out and in place. If you are leaving the water like this for an extended period of time, add chlorine and possibly an algaecide in order to minimize the clean-up required before refilling the pool.
- 5) When you are ready, refill the pool using a garden hose with a "bobby filter" on the end to screen out debris and fine sediment. If you do not have one of these filters, contact Endless Pools Customer Service. If you have high calcium content and/or high metal content in you area, you should also add some "sequestering agent" to the pool water to help prevent scaling/ staining. You may also be able to find both of these items at a local pool store.
- 6) When the water has risen to the top of the benches, reinstall the four corner covers. Be careful not to push the covers against the liner or hit the liner with the edges of the corner covers. Doing so may cause a leak.
- 7) The pool is full when the water completely covers the grill at the front of the pool. Reestablish electrical power to the pool equipment, and start balancing the pool water. Shock the pool to 3.0 ppm free chlorine. Turn on your WQS in order to get your new body of water filtered, circulated, and heated.

#### 8. Winterizing Your Endless Pool

An Endless Pool may be used year round, even in colder climates. If you will not be using the pool during the winter in an area where freezing is a problem, special consideration must be taken to protect the pool and ancillary equipment if either is located outside. If you have any questions regarding precautions to take against freezing, please call our Customer Service Department at (800) 910-2714.



I I. Poolside Water Quality System Troubleshooting				
Symptom	Possible Cause	Solution		
No power to controller	1.) Tripped breaker	1.) Reset breaker		
	2.) Disconnect turned off	2.) Turn disconnect to ON position		
	3.) Improperly wired controller	3.) Verify wiring of controller		
No Keypad Display	1.) No power to controller	1.) See above diagnosis		
	2.) Keypad cord not attached	<ol><li>Plug in keypad cord. Plug must "lock" into place.</li></ol>		
	3.) Pins in display receptacle are bent	<ol><li>Straighten pins to allow cord to properly attach</li></ol>		
	4.) 1/2 amp fuse blown in heater controller	4.) Check for continuity on fuse and replace if necessary		
FLO Reading on Display	1.) Pump housing not filled with water	1.) Remove air from housing (prime pump)		
	2.) Water level too low	2.) Add water to pool (should be 1/2 way up skimmer opening)		
	3.) Filter is dirty	3.) Clean filter(s)		
	4.) Ball valve is closed or return line is plugged	4.)Open valve or remove plug		
	5.) Circulating pump is not plugged in	5.) Plug pump in. Plug must "lock" into place		
	6.) Swim current turned on	6.) Condition is normal		
	7.) Circulating pump turned off at keypad	7.) Turn pump back on by pressing key 1 on keypad or wait 30 minutes for auto restart of circulating pump		
	8.) 10amp fuse in heater controller has blown	8.) Check for continuity and replace if necessary		
	9.) No power to pump receptacle on	9.) 10 amp fuse may be blown inside heater controller heater controller. If fuse not blown, turn off breaker for 5 minutes and reset. If still no voltage to receptacle replace heater controller		
Circulating Pump Makes Noise	1.) Debris in impeller	Remove pump from system, take apart pump and clean ceramic ball that the impeller sits on		
	2.) Air trapped in housing	2.) Remove air from housing (prime pump)		
	3.) Rotor bearing worn	3.) Replace pump		
Pool taking long time to heat	1.) Heater not turning on	Controller not calling for heat-check thermostat set point		
	2.) Heat indicator on, no heat gain	2.) Check element continuity (14ohms). Replace if not in this range		
	3.) Losing heat from pool	<ol> <li>Insulate pool. Keep pool covered when not in use. Refer to "Retaining Heat" Service Instruction</li> </ol>		



#### 9. Keypad Functions and Troubleshooting



Smart Winter Mode Indicator



Jet Pump Indicator



Light Indicator



Filter Indicator



Heat Indicator



Set Point indicator



Key I



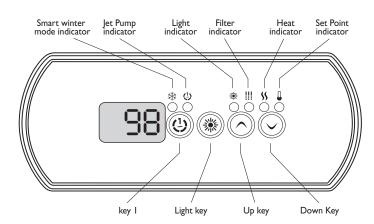
Light key



Up key



Down Key



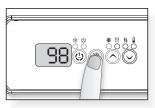
#### 10. Troubleshooting Error Codes



Press Key 1 key twice to turn the optional jet pump on. Press a third time to turn jets off.

A built-in timer automatically turns pump off after 20 minutes, unless pump has been manually deactivated first.

The "Pump 1" indicator lights up when Pump 1 is on.



#### **Light Key**

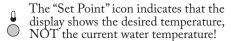
Press Light key to turn light on. Press a second time to turn light off. A built-in timer automatically turns light off after 2 hours, unless it has been manually deactivated first.

The "Light" indicator lights up when light is on.



#### Up/Down Keys

Use Up or Down key to set desired water temperature. The temperature setting will be displayed for 5 seconds to confirm your new selection.





#### Off Mode

This mode allows you to stop all outputs for 30 minutes to perform a quick spa maintenance.

Press and hold Key 1 key for 5 secs to activate the Off mode. Quick press Key 1 key to reactivate the system before the expiration of the 30-minute delay.

While the Off mode is engaged, the display will toggle between OFF and the water temperature.



An internal hardware error has been detected in in.xe. Contact Customer



#### HL

The system has shut the heater down because the temperature at the heater has reached 119 F (48°C). Do not enter the water! Remove the spa cover and allow the water to cool down, then shut power off and power your spa up again to reset the system.



#### **AOH**

Temperature inside the spa skirt is too high, causing the internal temperature in the in.xe to increase above normal limits. Open skirt and wait until error clears.



#### **FLO**

The system does not detect any water flow while the primary pump is running. Check and open water valves. Check for water level. Clean filter. If the problem persists, call Customer Service.



A problem is detected with the temperature probe. Call Customer Service.



The water temperature in the spa has reached 108°F (42°C). Do not enter the water! Remove the spa cover and allow the water to cool down to a lower temperature. Call Customer Service if problem persists.



No low level configuration software has been installed into the system. Call Customer Service.



## **ENDLESS POOL® LIMITED WARRANTY**

FITNESS MACHINES, LLC WARRANTS TO THE ORIGINAL PURCHASER OF THE ENDLESS POOL MANUFACTURED BY US TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP UNDER NORMAL USE FOR TWO YEARS FROM PURCHASE.

Our obligation under the warranty shall be limited to the repair or exchange (at our option) of any part or parts which may thus prove defective under normal use within two years from date of purchase by the original purchaser, and which our examination shall disclose to our satisfaction to be thus defective. All labor costs for removal and re-installation of the defective part and all freight charges shall be paid by the purchaser and will not be reimbursed by Fitness Machines, LLC. This warranty is expressly in lieu of all other warranties expressed or implied including the warranties of merchantability and fitness for use and of all other obligations or liabilities for all damages direct or consequential to person, property or business whether or not occasioned by our negligence, and we neither assume for us any other liability in connection with the sale of this Endless Pool.

IN ADDITION, ENDLESS POOLS OFFERS A TEN-YEAR STRUCTURAL WARRANTY ON THE STEEL WALL PANEL SYSTEM. If a panel should deteriorate beyond structural use in this ten-year period, we will repair or replace the panel at our option after receipt and inspection of the defective panel. The structural warranty is voided when suitable drainage is not provided, and/or panels are not properly bonded, as stipulated in the installation instructions.

THIS WARRANTY SHALL NOT APPLY TO THIS ENDLESS POOL OR ANY PART THEREOF, WHICH HAS BEEN SUBJECT TO SALT CHLORINE GENERATORS, ACCIDENT, NEGLIGENCE, FREEZING, IMPROPER INSTALLATION OR OPERATION, ALTERATION, ABUSE OR MISUSE. THIS INCLUDES, BUT IS NOT LIMITED TO, FLOW RESTRICTIONS OR OBSTRUCTIONS ON ALL WATER AND HYDRAULIC SYSTEMS AND NOT MAINTAINING PROPER WATER CHEMISTRY (pH level must be maintained between 7.4 and 7.8 and total alkalinity between 80 and 120 ppm. Total dissolved solids (TDS) must be no greater than 3,000 ppm).

All orders are FOB Aston, PA. We will NOT be liable for any costs or losses due to changes in shipping schedules, or delivery times. It is the responsibility of the Customer to supply safe and proper site preparation, installation and operation for all Endless Pool Swimming Machines. This includes, but is not limited to, adequate drainage at any pool and/or equipment site, to control humidity, to post necessary safety signage and to ensure safe and proper use of all Endless Pool Swimming Machines. Customer shall be responsible for any and all building permits, fees, licenses, and authorizations necessary to comply with local building codes or requirements. Customer takes all responsibility for site preparation including, but not limited to, any slab or foundation. Any Endless Pools product installed above grade must be placed on a properly engineered structure, which is the responsibility of the customer.

We make no warranty whatsoever in respect to accessories or parts not supplied by Fitness Machines, LLC directly. The term "original purchaser", as used in this warranty, shall be deemed to mean the person for whom the Endless Pool was originally installed. We DO NOT warrant this machine to meet requirements of any safety code of any state, municipality, or other jurisdiction. Purchaser assumes all risk and liability whatsoever resulting from the use thereof.

In order to claim this warrant, original purchaser must promptly notify our Customer Service Department in writing of the existence of the claim and then follow our written instructions regarding the procedures for remedying the defect. Endless Pools, shall not be responsible for cartage, transportation, removal and/or reinstallation labor or any other such costs relating to performance of the warranty. In the event any portion of this warranty shall be deemed unenforceable by a court of law, the remainder of this warranty shall remain in full force and effect as if the voided portion were never included.

Prepaid returns of all Endless Pool products are accepted less a 10% restocking fee, up to 30 days from the date of purchase if undamaged and in its original shipping containers. Accessories, options and equipment that have been used are non-refundable. Before returning any product, you must call our Customer Service Department to receive proper return authorization.

Fitness Machines, LLC, 1601 Dutton Mill Rd., Aston, PA 19014 800-910-2714





