

INFINITY 4000™ AUTOMATIC SAFETY POOL COVER

**UNDER TRACK SYSTEM** 

**INSTALLATION GUIDE** 



# **SECTIONS**

Cover Tracks	5
Roll-up Mechanism	6
Cover Fabric	10
Classic Aluminum Lid	17
Home Owner Check List	10

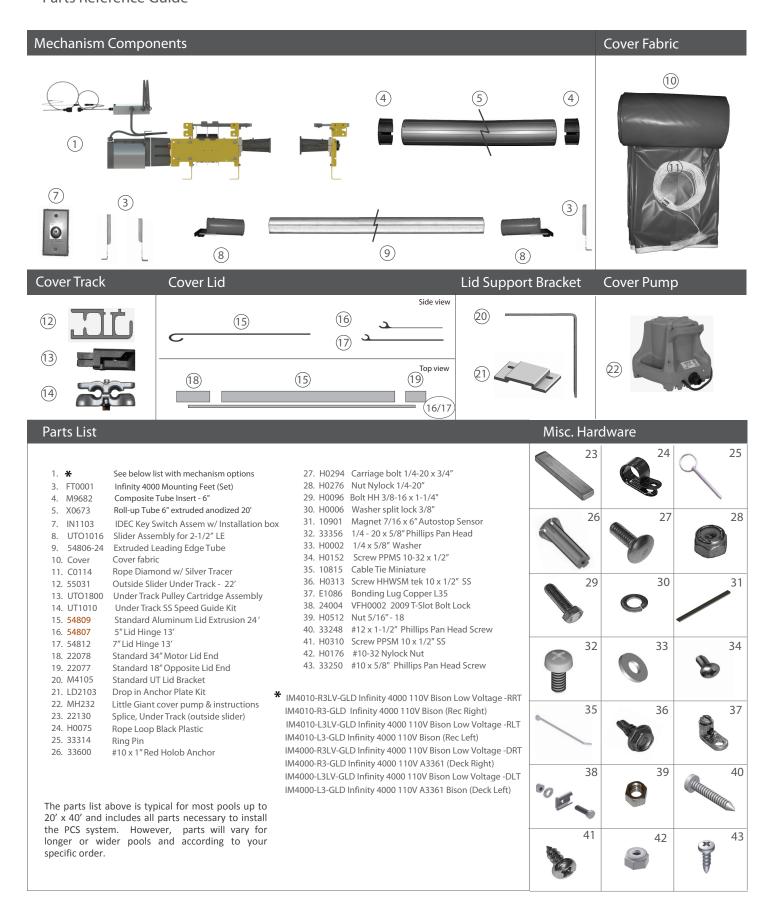
#### **Tools Required**

- 1. Hammer drill or rotary hammer
- 2. Masonry drill bit 1/4" x 6" (1/4" x 12" bit)
- 3. Extension cords
- 4. #2 and #3 Phillips & standard screw drivers
- 5. Ratchet with 5/16" 3/4" sockets
- 6. Hacksaw
- 7. String line
- 8. Utility knife
- 9. Broom
- 10. Hammer & rubber mallet
- 11. Pliers standard, needle nose & channel lock
- 12. Files round, triangular & flat
- 13. Matches or lighter
- 14. Carpenter's square
- 15. 5/16 hex head driver bit with 12" extension
- 16. Drill (cordless or corded)
- 17. Set of drill bits (1/4" down to 1/16")

- 18. Crescent wrench
- 19. 100' and 25' tape measure
- 20. Chalk line (use white chalk)
- 21. Nut drivers 5/16", 3/8", 7/16", 1/2"
- 22. Chisel (wood & concrete)
- 23. Scissors
- 24. Wire strippers
- 25. Set of box/open end wrenches 5/16" 3/4"
- 26. 6" level
- 27. Set of allen wrenches
- 28. Wire
- 29. Electrical tape
- 30. Small sledge hammer
- 31. Vice grips
- 32. #2 and #3 Phillips drill bits
- 33. Pencil or marker
- 34. 6 8 clamps

#### **Optional Power tools**

Skill saw with carbide tipped blade Sawzall, Grinder and Angle drill





# **COVER TRACKS**

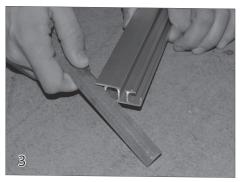


To determine if the cover system was ordered correctly for the pool, the length of the roll-up tube should be 6 inches shorter than the track space.

For example, for a 16 ft track space, the correct length of roll-up tube is 15 ft 6 in.



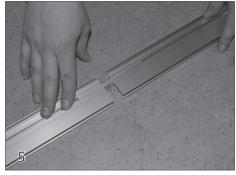
Cut the length of the track on each side of the pool so it will extend 1 inch past the end of the retainer and into the cover box.



Before splicing the sections of track together, file all track ends thoroughly, rounding all edges and removing all burrs. Clean metal shavings from the track. This step is extremely important! If the track isn't filed smooth, damage can occur to the ropes, slider and cover.



Slide the center splice (23) into the center channel of the track.



Lay the sections of track on the deck and tap them together using a rubber mallet so the center splice interlocks with each section of track.



Continue tapping the end of the track until the two sections of track are tight together so there is no gap between the lengths of track.



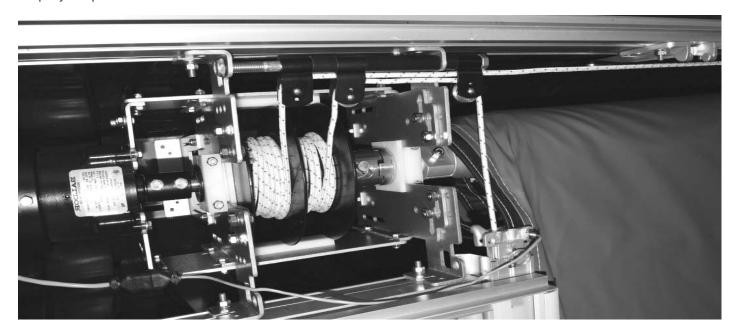
When encapsulation retainer is being used, the track is normally installed during the cover installation. With the track installed, make sure it is flush with the end wall at the shallow end.



Using a 5/32" allen wrench, loosen the screw on the top of the guide (14). Insert the guide on the end of the track that will extend into the housing.



While holding the guide firmly, use a drill with a 3/16" bit to drill through the hole in the guide and through the track. Remove the guide. Do this for the track on both sides of the pool.



# **MECHANISM**

Step By Step Instructions	Page/Step
Cover Box Preparation	7/1
Connecting the Roll-up Tube	7/2
Adjusting Mechanism Height	7/4
Positioning the Mechanism	7/7
Anchoring the Mechanism Feet	8/12
Extending the Pulley Brackets	8/13
Anchoring the Pulley Brackets	8/18
5 Wire Motor Wiring	9
3 Wire Motor Wiring	10



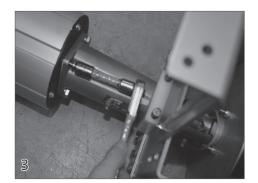
### **Cover Box Preparation**

Use a garden hose to clean out the cover box. During this process, make sure the water is draining from the cover box. It is critical that the cover box has adequate drainage. Inadequate drainage may void the mechanism warranty. If there is no drain or inadequate drainage in the cover box, contact your PCS representative.

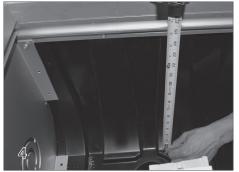


## Connecting the Roll-up tube

Attach the hub casting on the non-motor end of the mechanism to the insert that is in the roll-up tube using the 3/8-16 x 1-1/4" bolts (29) and 3/8" lock washers (30) provided. Tighten these bolts with a 9/16" wrench.



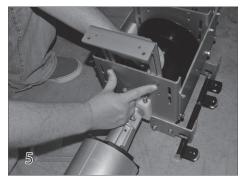
Attach the hub casting on the motor end to the insert that is in the roll-up tube motor end using the 3/8-16 x 1-1/4" bolts (29) and 3/8" lock washers (30) provided. Tighten these bolts with a 9/16" wrench.



### Adjusting Mechanism Height

Measure from the bottom of the housing to the top of the track. The top of the mechanism should be installed so it is at the same height as the top of the track.

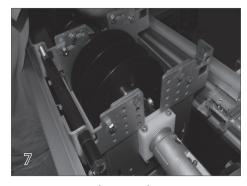
Because the top of the mechanism is adjustable, use the feet to position the roll-up tube as high as possible in the cover box, but allowing clearance so the cover won't rub on the lid brackets.



With the motor end positioned upside down, install the mounting feet using a 7/16" wrench to secure the 1/4 -20 x 3/4" carriage bolts (27) and 1/4 -20" nylock nuts (28) provided.



Install the mounting feet on the non-motor end using the 1/4 -20 x 3/4" carriage bolts (27) and 1/4 -20" nylock nuts (28) provided. The top of the pulley bracket on the non-motor end should be flush with the top of the track.



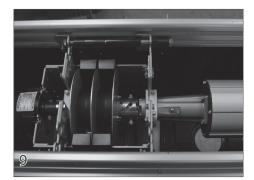
#### Positioning the Mechanism

Lower the assembled mechanism with attached roll-up tube into the cover box and place it roughly in the position where it will be anchored.

Note: If the cover box isn't square to the pool, position the mechanism in the cover box so it will be square to the cover track.

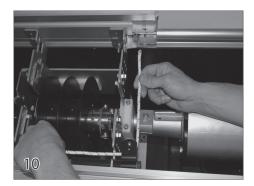


With the mechanism and tube assembled and set in place in the housing, check the roll-up tube for level. This is crucial to proper operation of the cover. Position a level across the housing. Measure from the roll-up tube to the bottom of the level on both the motor end and non-motor end of the mechanism. Adjust height of the non-motor end feet if needed to level the roll-up tube.

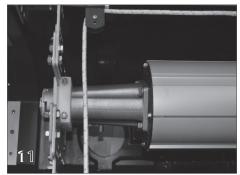


Position the mechanism in the cover box so that the roll-up tube is centered in the cover box front to back and properly aligned with the track. The rope should travel straight from the track to the pulley.

It may be helpful to mark the center of the rollup tube and mark the center of the bond beam. Position the mechanism so the marks are in alignment.



Align the mechanism on the motor side first by using a length of rope and extending it from the back side of the cover track to the pulley to make sure the rope will feed directly into the pulley.



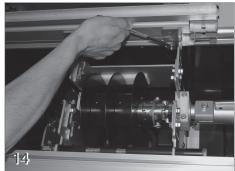
On the non-motor end, make sure the rope will travel straight from the track to the pulley.



Anchoring the Mechanism Feet With the mechanism centered between the tracks and centered in the cover box front to back, anchor the mechanism mounting feet into the cover box. Use the appropriate screws and anchors depending on the type of cover box being used.



Extending the Pulley Brackets
Use a 1/2" wrench / socket to loosen the nuts in the four positions on the adjustable brackets of the motor end of the mechanism. Spread the brackets outward against the walls of the cover box.

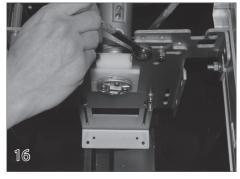


Raise the pulley brackets up so that the top of the bracket is even with the top of the retainer. This insures the ropes will be level.

Tip: Before raising the pulley brackets, make sure the feet for the mechanism are set as high as possible, while still allowing the clearance needed under the lid brackets for the cover.



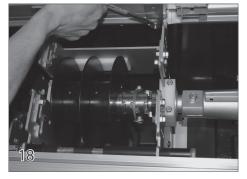
With the brackets in position, place a small level across them to make sure they are level. Place the small level on the motor to make sure it is level. If the motor isn't level, it may affect the shifting of the drive mechanism. Tighten the eight nuts on the adjustable motor end brackets.



Loosen the bolts and nuts using a 1/2" wrench / socket on the adjustable brackets on the non-motor end of the mechanism. Spread the pulley brackets outward against the walls of the cover box.



With the brackets on the non-motor end in position, place a small level across the brackets to make sure they are level. Tighten the 4 mounting arm bolts on the adjustable brackets.



Anchoring the Pulley Brackets
Anchor the motor mechanism brackets into
the cover box in as many places as possible.
When using the flush lid, use a wrench to
tighten the mounting bolts.

When mounting the mechanism in other applications, use the appropriate screws and anchors depending on the type of cover box being used.



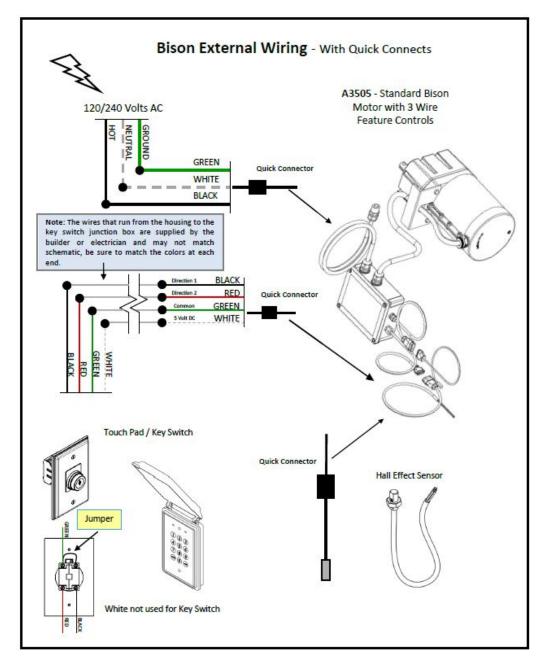
Attach the #8 copper bond wire that is stubbed into the cover box to the bonding lug on the motor end of the mechanism.



Make the same connection with the #8 copper bond wire that is in the cover box on the non-motor end of the mechanism.

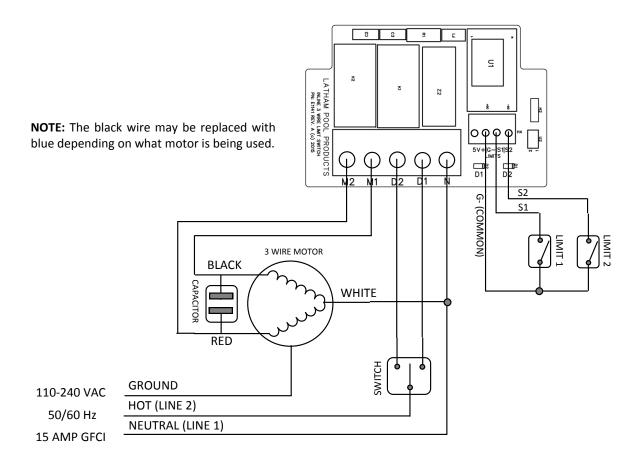
## Wiring the Electrical Switch

There is one motor option available, the new 3 wire motor. It is critical that the control switch that controls the motor be mounted in an all-weather box, in a location where 100% of the pool is visible. Use the following wiring diagram.

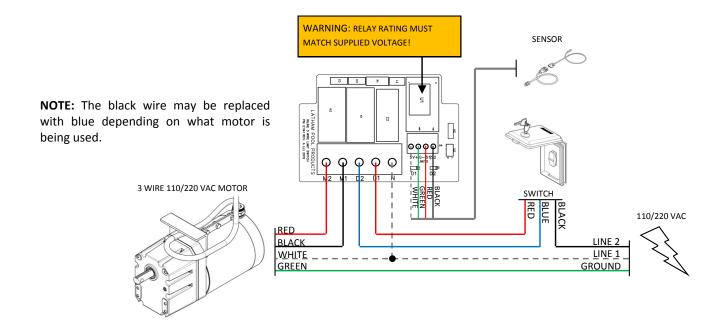


# For the 3 Wire motor option, use the wiring diagrams below.

# **Technical Wiring Schematic**



## **Simplified Wiring Schematic**





# **COVER FABRIC**

Step by Step Instructions	Page/ Step
Opening the Cover Box	12/1
Running Ropes in the Tracks	12/4
Installing the Cover Tracks	12/9
Routing the Ropes	13/11
Track Retainer	13/15
Magnet Installation	13/18
Attaching the Leading Edge Tube	14/21
Attaching the Ropes to the Reels	15/32
Running out the Cover	16/42
Attaching the Cover and Bonding W	ire16/43
Mechanism Adjustments	
Adjusting the Ropes	17/52



## Opening the Cover Box

To open the cover box, use scissors to cut the bands that hold the two halves of the box together. Never cut the top of the box open. Doing this could easily damage the cover inside. This kind of damage is not covered under the fabric warranty. With the bands cut, lift and remove the top of the box.



Standing behind the housing looking over the pool, unroll the cover from left to right. This will ensure the cover will be right side up when it is unrolled.

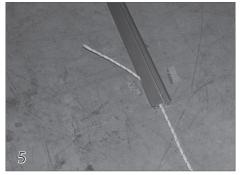


Uncoil the ropes to remove twists and kinks. Run the ropes through the tracks. There are two methods that can be used.



#### Running Ropes in the Tracks

The preferred method of running the rope is to allow a short length of the rope to extend outside of the track. The portion of rope outside the track will be pulled as the rope is ran in the track.



Hold the rope outside the track and pull the rope along the length of track toward the end of the pool.



Feed the rope through the pulley cartridge assembly (13). Insert the pulley with the rope onto the end of the track.



Pull the rope down the back side of the track toward the cover box.



# Alternate Rope Feeding Method

Another common method of running rope in the track is to pierce the rope with a small piece of wire. This wire then becomes the pulling handle as you feed the rope into the end of the track. This is especially useful if retainer isn't being used and the tracks are already installed.

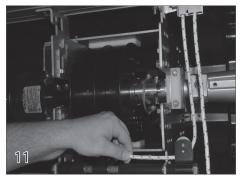


Install Track in the Retainer

Begin at the shallow end of the pool and insert the track into the retainer. Lift the track so the tongue and groove between the track and retainer will interlock. Make sure the track is flush with the end wall of the shallow end of the pool. Make sure track at the mechanism end extends 1" past the retainer into the cover box.

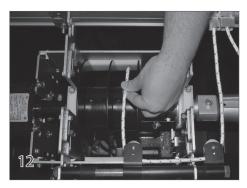


Insert and tap the locking strip into place underneath the track along the entire length of the track. Make sure a locking strip is placed at all track spices. Do this along both sides of the pool. The shim needs to end at the inside edge of the cover box.

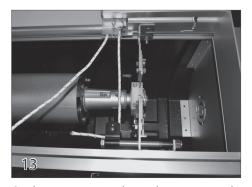


# Routing the Ropes

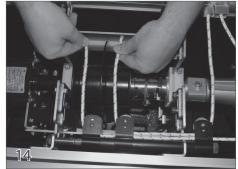
Begin on the motor end of the mechanism. Run the rope from the track so it travels straight from the track to the first pulley. Extend the rope out the back side of the pulley.



This rope will continue from the first pulley to the second pulley. Pull the rope so it comes out alongside the second pulley.



On the non-motor end, run the rope around the pulley and out the backside of the pulley assembly. Pull this rope along the back of the cover box to the motor end pulley assembly. Be sure to route the rope in front of the lid brackets.

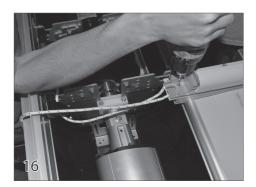


Insert the rope from the non-motor end into the channel behind the first pulley on the motor end. This rope will travel behind all three pulleys and come out alongside the third pulley. Pull the rope toward the rope roal



#### Track Retainer

With retainer installed on the pool, and extended one inch into the cover box, it is used to keep the track from being pulled into the cover box.



Drill through the center of the retainer and track using a 1/4" drill bit.

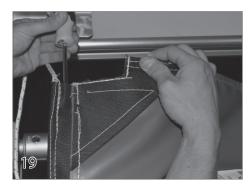


Insert the locking ring pin (25) through the retainer and the track. This will lock the track into the retainer so it can't slide into the cover box as the cover system is operating.



## Magnet Installation

Test the polarity of the 7/16 x 6" autostop sensor magnet (31) by running it past the sensor while the motor is running in the uncover position. When the motor successfully shuts off from the magnet passing the sensor, the side of the magnet facing up will need to be inserted into the webbing in that same orientation. This may need to be reversed if the sensor needs to be mounted under the guide.



On the front corner of the cover, that is on the same side as the motor, insert a screw driver into the end of the webbing to open it up and create a pocket.



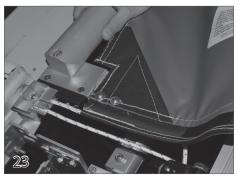
Apply the supplied grease to the magnet. This will help it slide in the webbing easier. Slide the magnet (31) into the webbing with the same side facing up that shut the motor off when it was passed in front of the sensor.



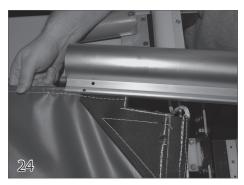
Attaching the Leading Edge Tube File the edges of the rope channel before sliding it onto the rope hem of the cover. If the leading edge tube will remain exposed, slide the tube on to the bead on the front of the cover.



Attach the leading edge insert and slider plate to the cover by threading (2)  $4-20 \times 5/8''$  two screws (32) and the  $1/4 \times 5/8''$  washers (34) that come attached to the slider plate, through the pre punched holes in the cover and into the slider plate. Repeat this on both sides of the cover. Use caution if using a drill to attach these screws.



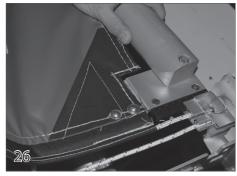
On one side of the cover, pull the rope as it comes out of the track as you feed the slider and cover into the track. Keep pulling until the slider is in the track a few inches. Having the slider on one side of the cover in the track will help with the installation of the leading edge bar.



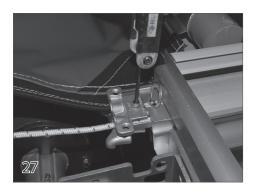
On the opposite side of the cover that hasn't been pulled in the track yet, slide the leading edge tube on the rope hem along the front edge of the cover. Pull tight on the cover to help slide the leading edge bar onto the cover.



Slide the nylon leading edge inserts into the ends of the leading edge tube. Note, one of these insert assemblies is in the track while the other is outside of the track. Make sure the inserts can slide freely inside the leading edge tube. If they don't, clean off any burrs that may be causing them to bind.



Insert the side of the cover that isn't in the track yet. Pull the rope as it comes out of the cover track



With the cover and slider in the track, insert the guide on the end of the track. Use a 5/32" allen wrench to tighten the screw that connects the two sections of guide together.

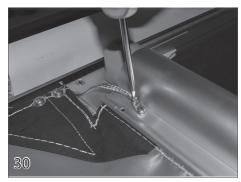
Tip: To prevent the screw and nut from seizing, get it wet before tightening.



Drill a 3/32" pilot hole through the top of the rope channel of the leading edge tube. Do this on both ends of the leading edge tube.



Drill a second hole using a 3/16" bit in the flat section of the leading edge just behind the rope channel. This is where a bonding lug will be attached. Do this on both ends of the leading edge tube.



Connect the bonding wire that is attached to the front corner of the cover to the leading edge tube by first securing a bonding lug to the bar, using the 10 - 32 x 1" screw (34) and 10-32 nylock nut provided (42). Then, insert and tighten the bond wire in the bonding lug. Do this on both sides of the leading edge tube.



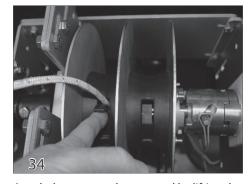
Position the fabric on the leading edge so it is in line with the edge of the rope C-channel. Pin the rope hem to the leading edge by placing a #10 x 5/8" pinning screw (43) in the drilled hole and through the rope hem. Do this on both ends of the leading edge bar.



Attaching the Ropes to the Reels The cover must be open when cutting and attaching the ropes. Pull the cover back until the sliders are against the guides. Pull the ropes tight as they come off the pulleys on the mechanism to eliminate the slack in the rope.



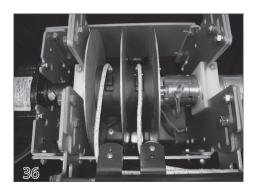
While pulling both ropes tight, use a lighter or torch to burn the rope in the location it will be cut. This will help them not fray after they have been cut. Cut the ropes so they are at least 8 ft long. Use the lighter to burn the cut ends of the rope if needed.



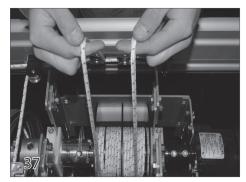
Attach the ropes to the rope reel by lifting the tab to allow the rope to be inserted.



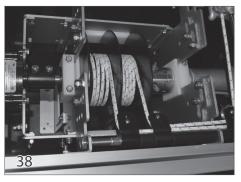
Press the tab down to lock the rope in place.



The attached ropes will look like this.



While holding the ropes over the mechanism, run the key switch in the cover position.



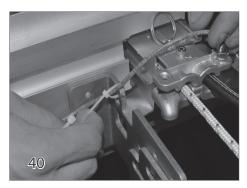
As the excess rope is wrapped around the rope reel, make sure it goes on straight without getting crossed with each other.



Installing the Sensor

Thread the sensor into the mounting hole on the cover side of the guide. The webbing of the cover will pass under the sensor.

If a stone lid is being used, the sensor may need to be mounted on the underside of the guide. The orientation of the magnet will need to be reversed.



Use cable ties (35) to secure the sensor wire to the motor end of the mechanism to keep it secure and from getting caught in the cover or ropes.



Connect the sensor wire to the motor wires by pressing the wire connections together.



Running out the Cover
Operate the key switch in the cover position to
run the cover over the pool. Assist the cover as
it is being pulled over the pool by helping
unfold it and feed it into the cover track.



Attaching the Cover & Bonding Wire Make sure the webbing continues straight as it travels from the track to the roll-up tube. Attach the cover to the roll-up tube using #10 x 1/2" SS tek screws (36). The first screw on each end of the tube needs to be 3 inches from the end of the tube. As the cover rolls up on the tube, the webbing will be rolling up over the end casting.



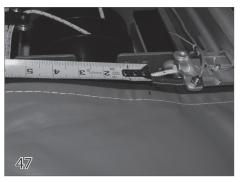
Attach the bond wire from the tail of the cover to the bonding lug (37) that is attached to the end casting.



Distribute the slack of the cover evenly between each screw across the length of the tube. Secure the cover to the roll-up tube using #10 x 1/2" SS tek screws (36) every 2-3 feet.



With the cover in the fully closed position, mark the webbing where it is in line with the sensor that is mounted on the guide.



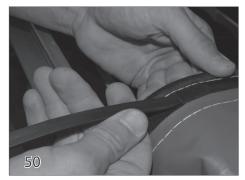
Measure back 6-1/2 inches from the mark that was made on the webbing.



Using a utility knife, carefully cut a slit in the webbing long enough for the magnet to be slid through. Be careful not to cut through the bottom layer of webbing.



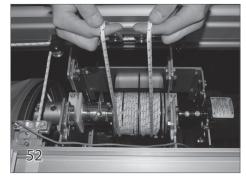
Insert a screw driver through the slit in the webbing to create the pocket for the magnet.



Apply the supplied grease to the magnet. This will help it slide in the webbing easier. Insert the magnet (31) through the slit in the webbing. Push it forward until it is completely inside the webbing and in line with the mark on the webbing.

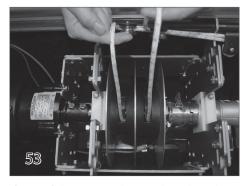


Run the key switch in the uncover position to roll the cover up on the roll-up tube. Check the cover to be sure it rolls up evenly. Run the cover 6-10 times to make sure it opens and closes evenly. The cover fabric installation is now complete.

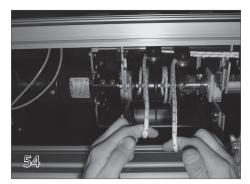


Adjusting the Ropes

When opening the cover, if both sides of the cover don't open squarely, one of the ropes may need to be adjusted. To adjust the rope, open the cover all the way. Pull the excess rope off the rope reel. Pull on the rope that will adjust the side of the cover that is closest to the cover box so it will be straight with the other side of the cover.



If one of the ropes is longer than the other rope, lift the tabs that secure the ropes to the rope reel. Shorten this rope, by inserting more rope into the opening in the reel. Secure the rope by pushing back down on the tab.



If both ropes are the same length, and the cover doesn't close squarely, shorten the rope for the side of the cover that doesn't close all the way. The amount that the rope is shortened is equal to the distance that the cover needed to travel to close all the way. After shortening the rope, run the switch in the cover position while holding the ropes.



# STANDARD ALUMINUM LID

Step By Step Instructions	Page/Step
Installing the Lid Brackets	19/1
Assembling the Aluminum Lid	19/4
Attaching the Lid to the Deck	19/7



Installing the Lid Brackets

Space the drop-in anchor plates (22) evenly across the back of the cover box, beginning at least 10" from the track. Secure the anchor plate to the back of the cover box using appropriate screws and anchors, depending on the type of cover box that is used.



Install rope loops (25) on the rope along the back of the cover box. Secure the loops to the cover box using appropriate screws and anchors, depending on the type of cover box that is used.



Slide the standard lid bracket into the drop in anchor plate.



Assembling the Aluminum Lid Assemble the lid by sliding the hinge (16/17) onto the main section of lid (15).



Slide the motor (18) and non-motor (19) ends onto the hinge.



Position the lid over the top of the housing. The motor end and non-motor ends should extend past the cover housing 1-2". If they extend more and do not lay flat on the deck, it may be necessary to cut the lids. Mark the lid with a square at the 1" overlap point and cut it to length with a hacksaw or power saw with carbide tipped blade.



Attaching the Lid to the Deck Drill through the lid hinge along the back edge every 2-3' using a 1/4" drill bit. Then, drill through these holes and into the concrete deck using a 1/4" masonry bit.



Insert plastic anchors (26) into the holes and tap with a hammer so they are flush with the deck. Fasten the lid to the deck with #12 pan head screws (40).



Measure across the hinge to evenly space the screws. Continue drilling and anchoring the hinge in this manner until the entire lid is attached to the deck. The safety pool cover installation is now complete. Now instruct the home owner using the home owner's guide and the checklist on the next page.



# HOME OWNER CHECKLIST

After the cover system is installed, it is critically important to instruct the home owner on how to operate the cover system safely and do routine maintenance. Use the following check list and the Infinity 4000<sup>TM</sup> Owner's Manual and Safety Information guide as your primary instruction source.

# Installation Checklist

	Tracks are bolted in and are tight and Stops are installed.
Mecha	Mechanism installed level in the box. Roll-up Tube level in housing. Roll-up Tube centered between the tracks. Enough clearance top, bottom, sides for the fabric. No rubbing of webbing on sides or bottom of box. Tube at the right height? System mounted at right angle to the track. Ropes coming back straight out of the track. An excessive angle will cause wear on the cover guides at the end of the track. Ropes are not rubbing on any brackets or the deck. Ropes are run correctly. 8 feet of rope left on rope reel. System bonded according to electrical code. Cover bonded to leading edge and roll-up tube. Rope loops installed on or near each lid bracket so rope cannot droop and snag on cover or lid brackets. Make sure there is adequate drainage from the cover housing.
	Fabric pinned to the roll-up tube without pinned folds. Cover runs smoothly. Cover properly aligned when it closes or retracts. Note: An inch or two out of square is not uncommon and is not a concern as it will not affect the operation of the cover. Because of the size of the fabric roll and changes in operating conditions the cover may vary slightly in alignment as it is run. The leading edge inserts move in and out freely the whole length of the pool. Cover does not rub in the housing as it rolls up.
Cover I	Lid  All sharp edges have been filed.  All areas where the lid is not flat on the deck have been screwed down to eliminate any potential hazards.  There is enough clearance between the lid brackets and the cover to avoid rubbing.
Misc.	Key switch is in full view of the pool.  Cover pump tested by putting it in the water and operate it in front of homeowner.  The cover box is clean and clear of debris so that the drains are not easily clogged.  Pool area cleaned up.  Homeowner has been instructed.