

T3666-60A

POOL ASSEMBLY AND INSTALLATION MANUAL

Above Ground 52" Round Pools



Note: Deck and fence accessories shown are optional.

THIS MANUAL EXPLAINS THE CORRECT METHOD TO ASSEMBLE YOUR NEW SWIMMING POOL. READ THESE INSTRUCTIONS AND STUDY THE ILLUSTRATIONS. ALSO READ INSTRUCTIONS FOR ACCESSORIES SUCH AS FILTERS, LADDERS, ETC. PAY PARTICULAR ATTENTION TO THE CAUTIONS ON THE FOLLOWING PAGES.

THE MANUFACTURER IS NOT AFFILIATED WITH ANY PROFESSIONAL POOL INSTALLER, THEREFORE THE MANUFACTURER CANNOT ASSUME RESPONSIBILITY FOR ERRORS IN THE INSTALLATION OF YOUR POOL BY THE INSTALLER OR THE HOMEOWNER. IF YOU HAVE THIS POOL INSTALLED BY OTHERS, PLEASE SUPERVISE TO BE SURE YOUR POOL IS INSTALLED PROPERLY AND THAT ALL THE CAUTIONS LISTED THROUGHOUT THIS MANUAL HAVE BEEN FOLLOWED. PAST EXPERIENCE OR SHORT CUTS MAY NOT BE COMPATIBLE WITH OUR POOLS, FOLLOW THE INSTALLATION MANUAL.

THE MANUFACTURER RESERVES THE RIGHT TO CHANGE OR IMPROVE ANY ITEM WITHOUT INCURRING ANY OBLIGATION TO MAKE ANY CHANGES OR IMPROVEMENTS ON ITEMS PREVIOUSLY SOLD AND TO DISCONTINUE MODELS OR CHANGE SPECIFICATIONS AT ANY TIME WITHOUT NOTICE.

THIS PRODUCT IS SOLD WITH A "LIMITED WARRANTY". THE TERMS AND CONDITIONS ARE SET FORTH IN THE "LIMITED WARRANTY" CERTIFICATE PACKED WITH EACH POOL. COPIES OF THE "LIMITED WARRANTY" ARE ALSO AVAILABLE UPON WRITTEN REQUEST.

YOUR LOCAL BUILDING CODE MAY REQUIRE OBTAINING A BUILDING PERMIT AND MAY HAVE REQUIREMENTS ON SETBACKS, BARRIERS, ETC. ANY HOME BUILT OR PREFABRICATED DECKS SHOULD CONFORM TO THE LOCAL CODES, AND BOCA NATIONAL BUILDING CODE. THE ELECTRICAL CODE MAY REQUIRE A PERMIT AND INSPECTION, AND USE OF GFCI DEVICES OR OTHER CONDITIONS. THE ELECTRICAL INSTALLATION MUST ALSO CONFORM TO ARTICLE 680 OF THE NATIONAL ELECTRIC CODE. INSTALL THE FILTER AND PUMP IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. **ARTICLE 680 STATES THAT YOU MUST BOND THE SWIMMING POOL PUMP TO THE SWIMMING POOL. THIS CAN BE DONE BY ATTACHING A #8 COPPER WIRE FROM THE BONDING LUG ON THE PUMP TO AN UNPAINTED METAL SURFACE ON THE POOL WALL OR BOTTOM CLIP.**

THE INSTALLATION OF AN ABOVE GROUND SWIMMING POOL WILL USUALLY REQUIRE THREE PEOPLE TO HELP ASSEMBLE IT.

DANGER: THIS POOL, EVEN IF SUPPLIED WITH A DEEP AREA, CONFORMS TO THE NATIONAL SWIMMING POOL INSTITUTE STANDARDS FOR A TYPE O, NON-DIVING POOL. DIVING, SLIDING OR JUMPING INTO THE POOL MAY CAUSE PARALYSIS, DEATH OR PERMANENT INJURY.

DANGER

1. DO NOT DIVE OR JUMP INTO YOUR POOL. DO NOT USE A POOL SLIDE ON THIS POOL. YOUR POOL CONTAINS SHALLOW WATER AND IS NOT DESIGNED FOR HEADFIRST ENTRY (DIVING OR SLIDING) OR JUMPING. DIVING, SLIDING OR JUMPING CAN RESULT IN A BROKEN NECK IF YOU STRIKE THE POOL. THIS CAN RESULT IN PARALYSIS, DEATH OR PERMANENT INJURY. INFORM ALL FAMILY AND GUESTS OF THESE RULES AND POINT OUT WARNING LABELS.
2. IT IS NECESSARY TO MAINTAIN A 4' HIGH BARRIER TO REDUCE THE CHANCE OF A CHILD ACCESSING AN UNSUPERVISED POOL. THE BARRIER MAY BE A FENCE, WALL, OR COMBINATION THEREOF WHICH COMPLETELY SURROUNDS THE POOL. BARRIERS MUST COMPLY WITH THE LOCAL BUILDING CODE, BOCA NATIONAL BUILDING CODE OR THE "CONSUMER PRODUCT SAFETY COMMISSION" BARRIER STATEMENT. THE FOUR FOOT HIGH POOL WALLS USUALLY PROVIDE THIS BARRIER, HOWEVER IF THE POOL IS LESS THAN 48" ABOVE GRADE, OR HAS BUTTRESSES (OVAL POOLS), YOU MAY NEED ADDITIONAL FENCING TO PROVIDE THIS BARRIER. CONSULT WITH YOUR BUILDING OFFICIAL FOR SPECIFIC REQUIREMENTS. FENCING OPTIONS ARE AVAILABLE FOR YOUR POOL, PLEASE CONTACT YOUR POOL DEALER.
3. YOU MUST MAINTAIN A 5' WIDE "CLEAR ZONE" AROUND THE POOL AND DECK OR FENCING. DO NOT ALLOW TOYS, CHAIRS, TABLES OR SIMILAR CLIMBABLE OBJECTS IN THIS "CLEAR ZONE", ENABLING CHILDREN TO CLIMB AND GAIN ACCESS TO THE POOL. THE FILTER EQUIPMENT MUST ALSO BE LOCATED OUTSIDE OF THE "CLEAR ZONE".
4. YOU MUST RAISE AND LATCH, OR SECURE YOUR POOL LADDER OR POOL ENTRANCE WHEN THE POOL IS NOT IN USE.

Adherence to the above items will reduce the frequency of preventable child drownings in swimming pools.

WARNING

1. YOUR POOL IS SUPPLIED WITH WARNING SIGNS, WHICH MUST BE AFFIXED TO THE POOL AS SPECIFIED. IF YOU BUILD A DECK, THE TWO AREA SIGNS MUST BE AFFIXED TO THE DECK AT THE POINT OF ENTRY, VISIBLE TO PEOPLE ENTERING THE POOL AREA. FAILURE TO INSTALL OR IMPROPER LOCATION OF SAFETY INFORMATION WILL SUBJECT YOU AND/OR THE INSTALLER TO LIABILITY ARISING FROM INJURY CLAIMS.
 - A. NO DIVING COPING: (TWO SUPPLIED) THESE ARE TO BE INSTALLED ACROSS THE POOL FROM THE POINT OF ENTRY, AND HAVE ONE SECTION OF REGULAR COPING BETWEEN THEM.
 - B. COPING WITH INTERNATIONAL LOGO: THIS ONE COPING IS TO BE INSTALLED AT THE POINT OF ENTRY, EITHER ADJACENT TO THE "A" LADDER, UNDER THE IN POOL LADDER, OR IN THE CENTER OF A DECK.
 - C. DANGER AREA SIGN WITH LOGO: (T1440) THIS SIGN MUST BE INSTALLED AT THE POINT OF ENTRY, FACING ALL USERS AS THEY ENTER THE POOL. IF YOUR POOL HAS A FENCE, THE SIGN IS TO BE FASTENED TO THE FENCE, ADJACENT TO THE LADDER OR ENTRANCE. IF YOUR POOL DOES NOT HAVE A DECK OR FENCE, ATTACH THE SIGN TO THE EDGE OF THE COPING ADJACENT TO THE LADDER. THE SIGN MUST BE VISIBLE TO ALL USERS AS THEY ENTER THE POOL AREA.
 - D. CAUTION - SAFETY RULES SIGN: (1445) THIS SIGN MUST BE ATTACHED TO THE FENCE DIRECTLY BELOW THE DANGER SIGN OR IF YOU DO NOT HAVE POOL FENCING, ON THE COPING NEXT TO THE DANGER SIGN.

If any signs are missing or damaged contact the customer service department for replacements.

CAUTION

1. DECK SURFACES MAY BECOME SLIPPERY WHEN WET. DO NOT RUN OR DIVE INTO THE POOL FROM THE DECK.
NOTE: SUNTAN LOTIONS AND OILS MAY CAUSE POOL COMPONENTS TO BECOME SLIPPERY.
2. **EACH MONTH CHECK THE POOL WALL FOR DETERIORATION OR LEAKAGE, ESPECIALLY AT THE SKIMMER AND RETURN FITTINGS. THE SKIMMER AND RETURN GASKETS SHOULD BE REPLACED EACH SPRING TO PREVENT LEAKAGE. DETERIORATION CAN WEAKEN THE POOL WALL WHICH COULD RUPTURE, RELEASING THE POOL WATER WHICH COULD CAUSE BODILY HARM AND PROPERTY DAMAGE.**
3. FOR NIGHTTIME USE, YOU MUST PROVIDE LIGHTING TO ILLUMINATE THE POOL, SAFETY SIGNS, AND DECK SURFACES. LIGHTING MUST COMPLY WITH ARTICLE 680 OF THE NATIONAL ELECTRIC CODE. IT IS IMPORTANT THAT USERS BE ABLE TO SEE THE SHALLOW DEPTH OF THE POOL AT ALL TIMES.
4. THE FOLLOWING BASIC LIFESAVING EQUIPMENT MUST BE ON HAND AT ALL TIMES:
 - A. A LIGHT BUT STRONG POLE (SHEPHERD'S CROOK) NOT LESS THAN 12' LONG.
 - B. A 1/4" THROWING ROPE, AS LONG AS 1 1/2 TIMES THE MAXIMUM WIDTH OF THE POOL, WHICH IS ATTACHED TO A COAST GUARD APPROVED FLOTATION DEVICE SUCH AS A RING BUOY.
 - C. A TELEPHONE SHOULD BE NEARBY WITH A LIST OF EMERGENCY TELEPHONE NUMBERS, SUCH AS POLICE, & AMBULANCE

5. ADDITIONAL POOL SAFETY RELATED PUBLICATIONS ARE AVAILABLE FROM THE FOLLOWING:

NATIONAL SPA AND POOL INSTITUTE
2111 EISENHOWER AVE
ALEXANDRIA, VA 22314

CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

IMPORTANT INSTALLATION ITEMS

1. LEVELNESS; POOL MUST BE LEVEL WITHIN 3/4". UNLEVEL POOLS PLACE EXTREME FORCES ON THE POOL WHICH MAY DEFORM.
2. WALL CLOSURE; THE POOL WALL MUST BE FASTENED TOGETHER PROPERLY WITH BOTH BARS AND FASTENERS IN ALL HOLES. OMITTED BARS OR FASTENERS CAN CAUSE THE WALL TO RUPTURE, DESTROYING THE POOL AND INJURING PEOPLE.
3. SAND COVE; THIS SUPPORTS THE LINER AND MUST BE PACKED SOLID. IF IT COMPRESSES, SHIFTS OR ERODES THE LINER MAY RUPTURE, RELEASING ALL THE WATER AND DESTROYING THE POOL AND INJURING PEOPLE.
4. THESE POOLS ARE NOT DESIGNED TO BE BURIED. THE GROUND FORCES CAN COLLAPSE THE POOL INWARD.
5. DO NOT LOCATE YOUR POOL NEAR STRUCTURES SUCH AS A HOUSE, GARAGE, ETC. AS PEOPLE COULD DIVE OR JUMP INTO THE POOL RESULTING IN DEATH OR PERMANENT INJURY.
6. ALTHOUGH THERE ARE RELATIVELY FEW PARTS IN YOUR POOL, NONE MAY BE OMITTED IN ASSEMBLY. EACH PART SUPPLIED IS AN IMPORTANT PART AND IF OMITTED, MAY CAUSE POOL FAILURE. CHECK ALL PARTS AGAINST THE PARTS LIST.

WARNING: Do not exceed the following torque values for the noted fasteners:			
1/4" - 20 S. S. Fasteners			75 (in. lbs.)
3/8" - 16 S. S. Fasteners			236 (in. lbs.)
3/8" - 16 Aluminum Fasteners			143 (in. lbs.)

TOOLS AND MATERIALS

- | | | | |
|-------------------------|-----------------------|----------------------|---------------|
| PHILLIPS SCREWDRIVER #2 | HAND TROWEL | EXTENSION CORDHAMMER | RAKE |
| SLOTTED SCREWDRIVER #2 | GARDEN HOSE & NOZZLE | STRING LINE | PLIERS |
| SOCKET WRENCH & SOCKETS | 50' TAPE MEASURE | HAND TAMPER | TORQUE WRENCH |
| TRANSIT OR FARM LEVEL | ELECTRIC DRILL & BITS | GARDEN SHOVEL | WRENCHES |

1 LONG STRAIGHT 2 X 4 14' LONG
25 WOOD STAKES

1 ROLL DUCT OR FABRIC TAPE
1 CAN WHITE SPRAY PAINT

SAND AND BLOCK CHART	SAND		2" x 8" x 16"	4" x 8" x 16"
	POOL SIZE	TONS	PATIO BLOCKS	CAP BLOCKS
P 15'	2	1 1/4	10	
18'	2 1/2	1 3/4	12	
21'	3 1/2	2 1/4	14	
24'	4 1/2	3	16	
27'	5 3/4	3 3/4	18	
30'	6	5	20	

NOTE: Sand must be masons or bar sand and be free of foreign objects

SELECTING THE POOL SITE

1. Check your local building codes and acquire proper building permits. For poor soil conditions consult a professional engineer.
2. The pool site must be absolutely level and solid. The area must be free from stones and roots.
3. To protect the pool from chemicals and foreign matter in the soil, you may use a ground cover under the sand base.
Do not install your pool on asphalt, tar paper, grass, wood, gravel, clay, or concrete, or treated soils.
4. Position your pool away from trees, overhead wires, structures such as a house or garage or septic field.

GROUND PREPARATION

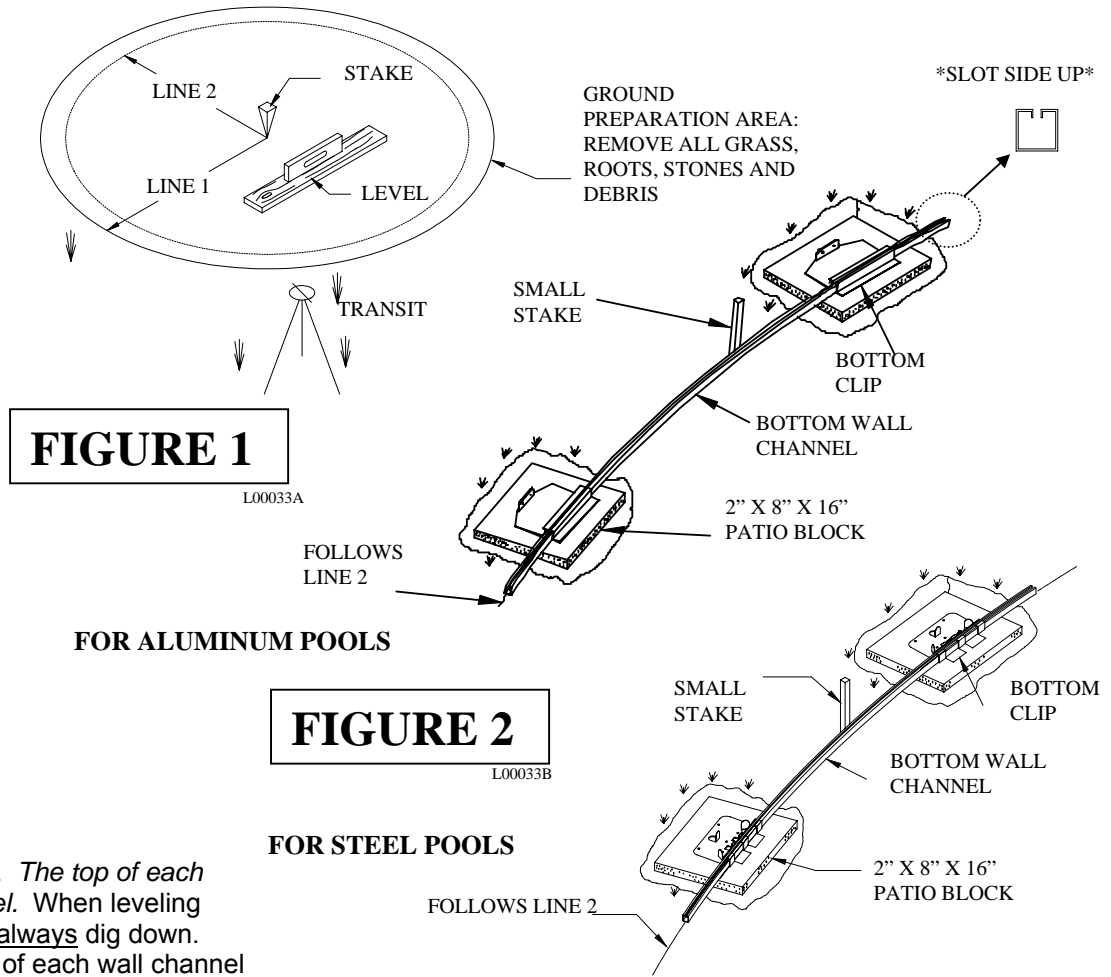
Your pool must be installed on a solid level surface. Position stakes as shown on figure 1 and use a farm level or transit to level the area shown. Remove all grass, roots and stones. Start at the lowest spot level outwards, do not fill in low spots. The area must be absolutely level. The following table refers to Figures 1 and 3 on the next page.

ROUND POOLS	LINE "1"	LINE "2"
15' - 0"	8' - 6"	7' - 6"
18' - 0"	10" - 0"	9' - 0"
21' - 0"	11' - 6"	10' - 6"
24' - 0"	13' - 0"	12' - 0"
27' - 0"	14' - 6"	13' - 6"
30' - 0"	16' - 0"	15' - 0"

SECTION II – POOL CONSTRUCTION

Step 1: Parts Identification: See figures in bill of material packet. Check for installation addendums.

Step 2: See Figures 1 and 2 and table on page 3. Scribe a circle defined by line "1". Slide the wall channels into the bottom clips and position them on the circle. Place a patio block under each bottom clip. If the bottom wall channel is on soft ground, place additional blocks in a pyramidal shape under the bottom clips for support.



Dig 2" down for each block. *The top of each block must be at grade level.* When leveling the blocks, never build up; always dig down. Place a stake at the center of each wall channel to keep the circle round during installation.

Step 3: See Figure 3, 4 and 5. Place the required amount of sand inside the pool area. Starting at the center of a bottom clip, insert the pool wall into the wall channel around the entire pool area. Make sure the skimmer and return cutout are at the top of the wall and not over a clip or upright. Attach the pool wall ends together as shown using the two (2) wall enclosure bars and hardware. The heads of the machine screws must be on the inside of the wall. Do not omit any fasteners in the pool wall connection. The wall will not stay together without all the fasteners. Cover the bolt enclosure on the inside with several layers of duct tape to protect the liner.
If either wall enclosure strip is missing, damaged or do not align properly with all holes in the wall, do not use the wall and notify your dealer at once.

CAUTION: Installation of the wall in any other manner than precisely described above will cause extensive damage to the pool and may result in injury or death to those people in or around your pool.

NOTE: If the wall does not stay in the wall channel, the ground is not level - remove the wall and level the wall channel.

After the pool wall is assembled, check the dimensions of the pool to insure that it has not shifted during assembly.

Step 4: See Figure 6. Attach the uprights to the bottom clips as shown. If pool is provided with feature strips see addendum in Bill of Material packet.

Step 5: See Figure 6 and Detail 6a. Install the skimmer throat gasket to each side of the pool wall and attach the skimmer to the wall as shown using hardware provided with the skimmer. Mount the skimmer at the center with only two (2) pan head screws at this point. Refer to skimmer instruction sheet.

If a pool fence or deck is to be installed, read those manuals before proceeding. Check care and maintenance manual for proper placement of safety information.

Step 6: See Figure 7. Spread the sand across the entire bottom of the pool. Moisten and tamp the sand to provide a solid base. The sand base must be 2" deep after tamping. The sand should be moistened and trowel to a smooth finish. Create a 6" radius cove along the wall as shown. This cove must also be tamped solid to prevent shifting. ; through 10 are for overlap liners only. For beaded liners proceed to step 11.

Step 7: Remove the liner from the carton and unfold into the pool . Be careful not to drag, abrade or snag the liner. Spread the liner out over the entire bottom of the pool. Raise the liner sidewall.

Step 8: See Figure 8A and Detail 8A. Place the liner over the edge of the wall. Make sure the overlap is equal around the outside of the pool wall. Cut the liner interlock into 2" pieces and center the pieces of the liner interlock over the wall at each upright. Place the bead receiver or wall channel over the wall edge as shown to secure the liner in place..

Step 8A: See Detail 8C for a J-Bead Liner. Place the J Hook bead of the liner on top of the wall and push down firmly. Then place the bead receiver or wall channel over the J Bead liner and attach the top clips to the uprights. Do NOT put the J-Bead liner in the bead receiver.

WARNING: Failure to use the sand or sand equivalent and shape it as specified will void all warranties on the pool and liner.

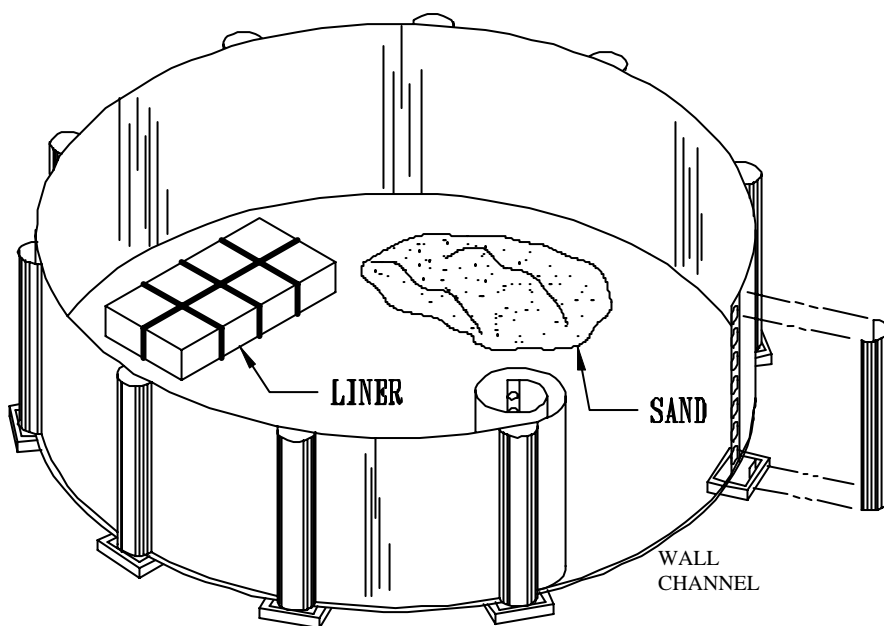


FIGURE 3
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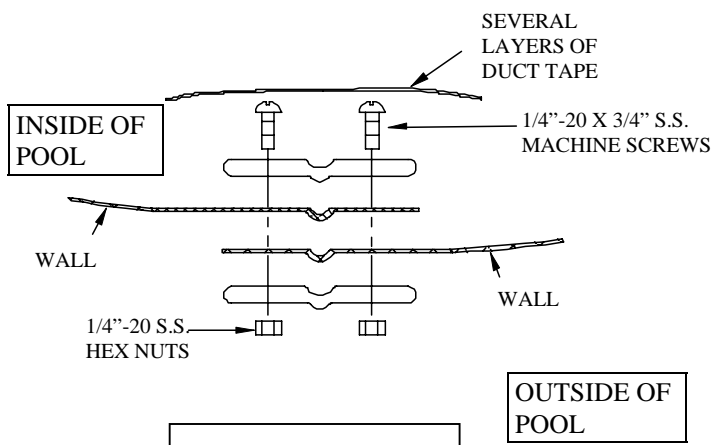


FIGURE 4

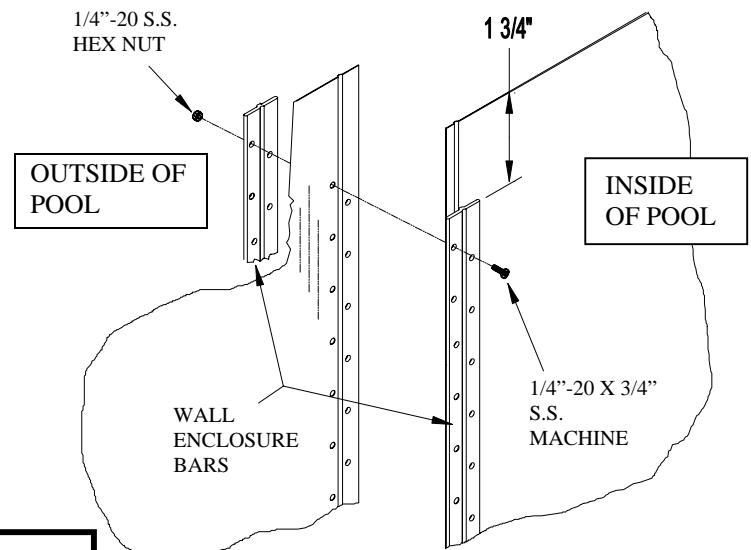
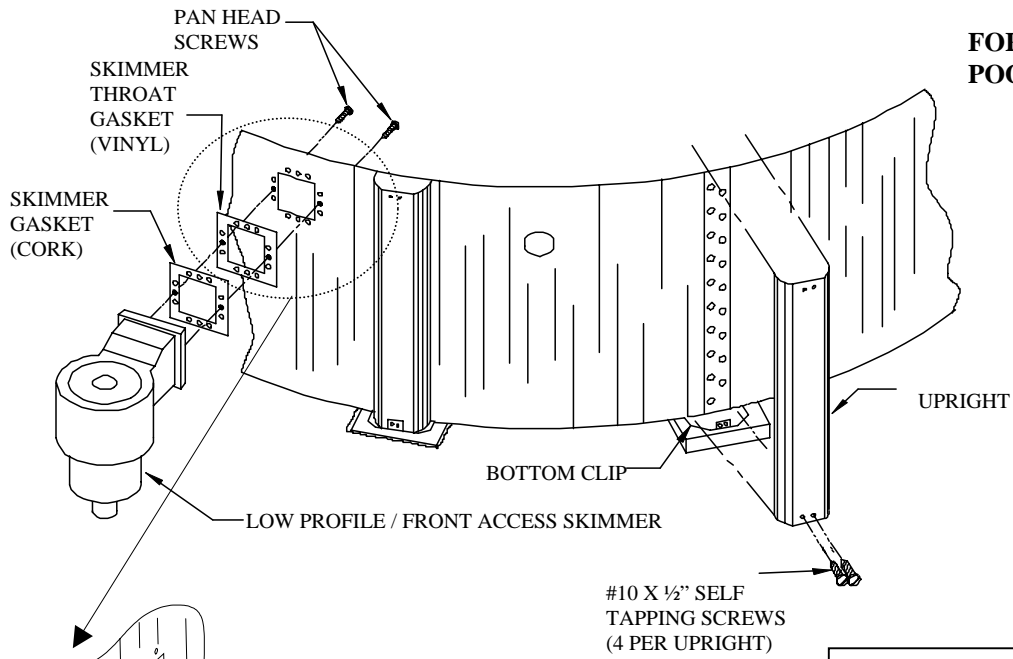


FIGURE 5
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NOTE: Start wall enclosure strip at the bottom hole on the wall. If the enclosure strip does not cover the last hole at the top of the wall, you should attach with a 1/4" – 20 x 3/4" machine

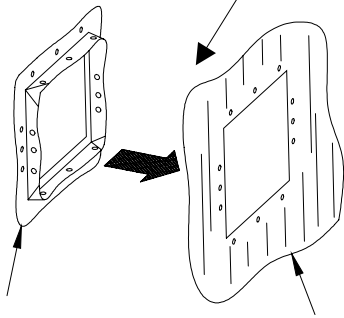


FOR ALUMINUM POOLS

FIGURE 6

W00025

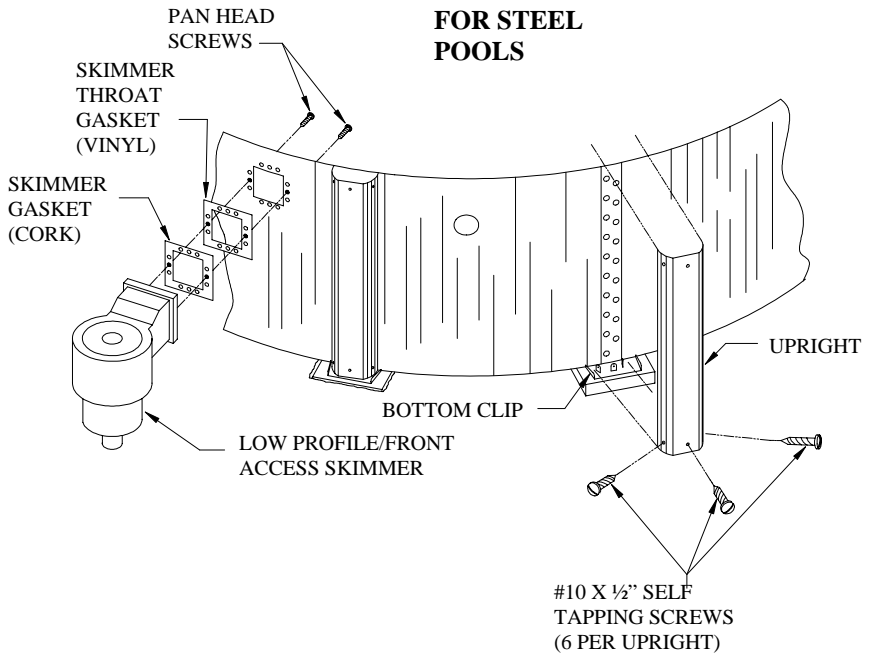
NOTE: THE SKIMMER THROAT GASKET MUST SANDWICH THE WALL. I.E. ONE FLAP OF THE GASKET MUST BE ON THE INSIDE OF THE WALL AND THE OTHER ON THE OUTSIDE.



SKIMMER THROAT GASKET WALL

DETAIL 6A

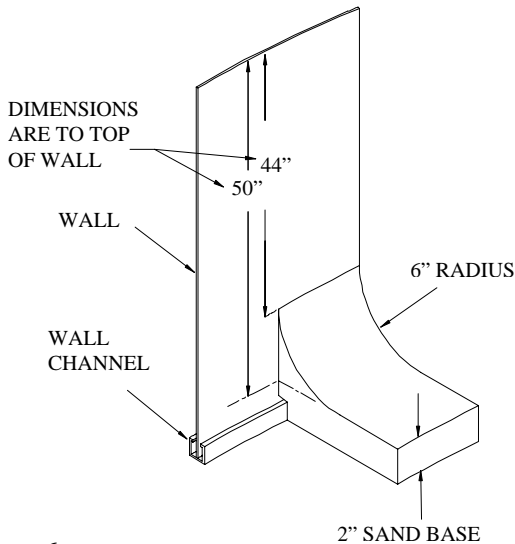
W00030



FOR STEEL POOLS

FIGURE 7

W00026



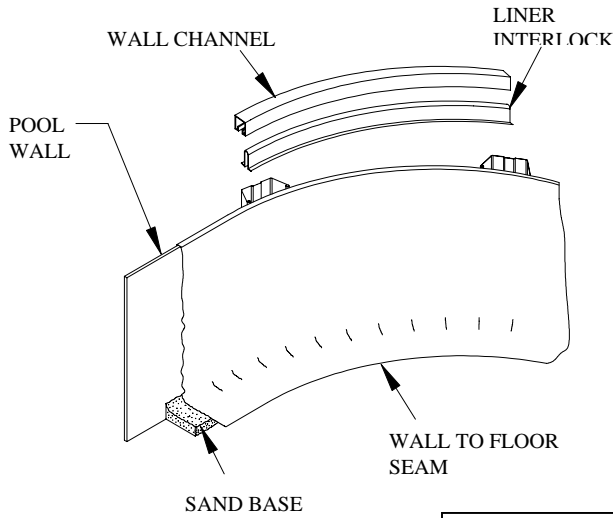


FIGURE 8A

NOTE: LINER BOTTOM SHOULD BE CENTERED ON THE POOL USING THE SEAM AT THE PERIMETER OF THE BOTTOM AS A GUIDE

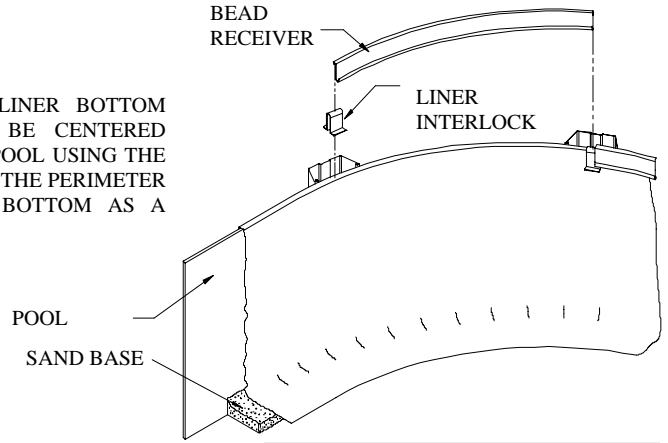
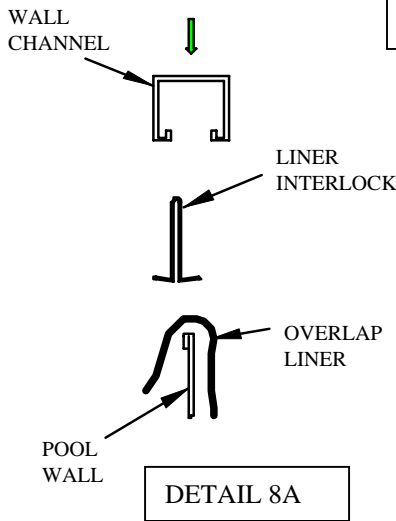


FIGURE 8B & C

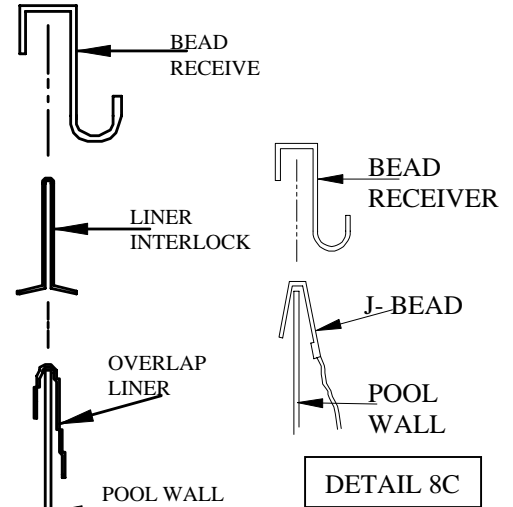
W00023



DETAIL 8A

NOTE: If the liner is exposed to the sun for a long time, it will stretch and cause wrinkles. This can be avoided by waiting until dusk or by spraying cold water on the liner during installation.

Step 9: Smooth all the wrinkles out on the bottom of the liner. To remove wrinkles, always pull the liner firmly but gently. No sharp tugs! Be certain liner is centered. Time spent removing wrinkles and aligning the liner will give you a neater looking and easily maintained pool.



DETAIL 8B

DETAIL 8C

Step 10: See Figure 9A and 9B. For aluminum pools only, install captive nuts on top clips. If you have a steel pool attach the top clips as shown. Note, the support bracket is only used on 6" steel frames. Lift up one end of the bead receiver and slide the top clip onto it as shown in Figure 9B. Slide the top clip completely onto the first bead receiver. Then push it down onto the wall. Next, slide the top clip over the adjacent bead receiver until the ends of the bead receiver is centered into the top clip

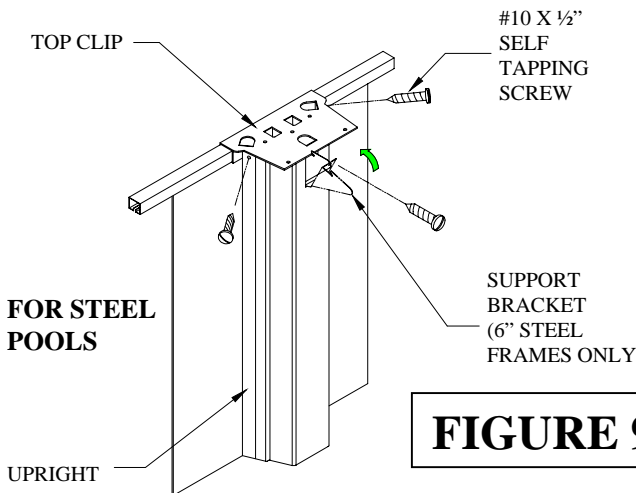


FIGURE 9A

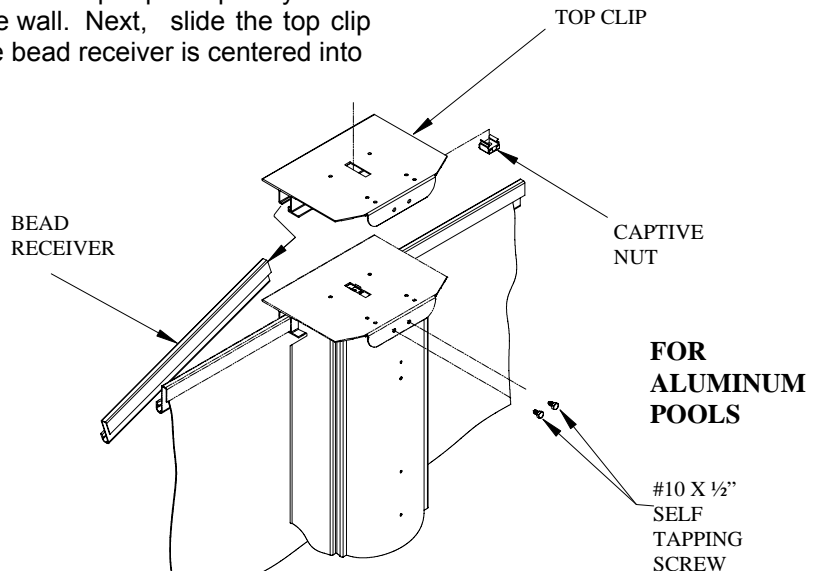


FIGURE 9B

A00005C

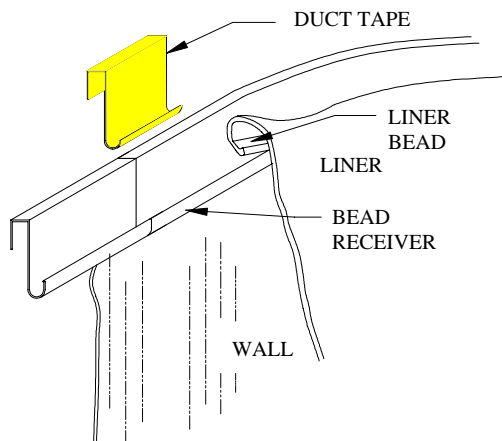
Steps 11 through 13 are for beaded liners only. For overlap liners proceed to step 14.

BEADED LINERS

Step 11: See Figure 8B, Detail 8B and Figure 10. Place the bead receiver on the wall. Tape the joints of the bead receiver using fabric tape to protect the liner. Place the top clips on the uprights. The support brackets (if provided) must be inserted into the round end uprights and rotated upward prior to installation of coping. Attach using one screw for the bracket and top clip and two additional screws for the top clip.

Step 12: Remove the liner from the carton and unfold into the pool. Be careful not to drag, abrade or snag the liner. Spread the liner out over the entire bottom of the pool. Raise the liner side wall and place the bead into the bead receiver. Bead must be fully seated in the receiver to prevent it coming out later when being filled. Check it frequently while filling pool.

Step 13: Smooth all the wrinkles out on the bottom of the liner. To remove wrinkles, always pull the liner firmly but gently. No sharp tugs! Be certain liner is centered. Time spent removing wrinkles and aligning the liner will give you a neater looking and easily maintained pool.



NOTE: If the liner is exposed to the sun for a long time, it will stretch and cause wrinkles. This can be avoided by waiting until dusk or by spraying cold water on the liner during installation.

FIGURE 10

W00023

Step 14: Begin to fill the pool with water. Use a slow stream of water and fill approximately 1 1/2" deep. Make sure the fit of the liner is correct, smooth out any wrinkles in the pool bottom. If installing a deck, do not fill more than 12" until the deck is installed.

Step 15: Fill the pool with 4" to 6" of water. Measure the distance from the coping to the water surface at several points around the pool to be certain that the pool is still level.

WARNING: The pool must not be more than 3/4" out of level. If the pool is not level, drain the water and level the structure. Any non-compliance with this requirement will void all warranties.

Step 16: See Figure 14. Locate the safety warning copings as described and as shown at the back of this manual. Attach coping as shown. To the outermost set of holes in the top clip.

Step 17: At each upright, attach the coping and coping covers as shown in Figures 11, 12A, 12B and 12C. Position the coping with warning labels as shown in Figure 14A and Figure 14B.

Step 18: Fill the pool until the water level is 3 inches below the return hole.

Step 19: Follow the instructions for the filtration system, skimmer and return that are supplied with the filter.

Step 20: Attach the remaining safety warning signs as described and shown in Figure 14A and B. If

COPING COVER ATTACHMENT FOR ALUMINUM POOLS

ALUMINUM POOLS WITH ALUMINUM COVERS

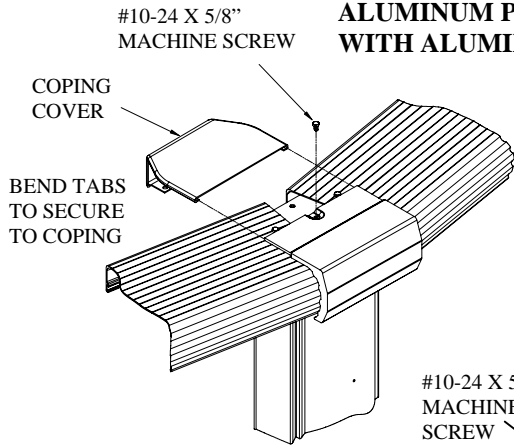


FIGURE 12A

A00028 A00027A A00027B

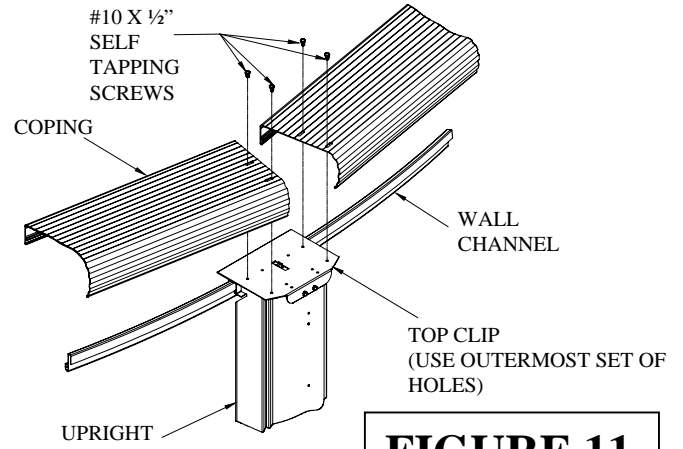
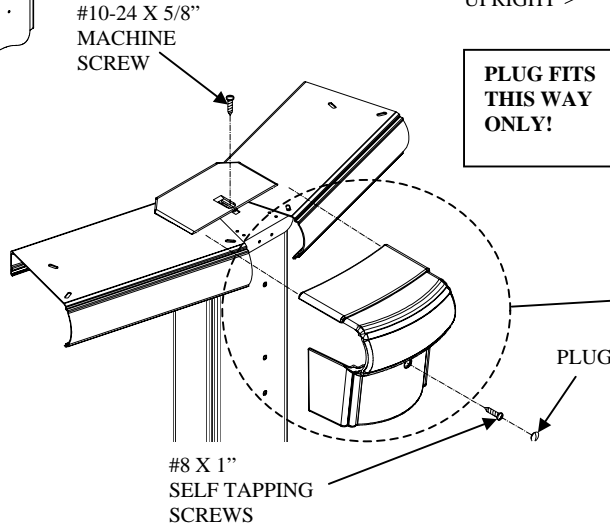


FIGURE 11

W00013D



ALUMINUM POOLS WITH RESIN COVERS

FIGURE 12B

A00029

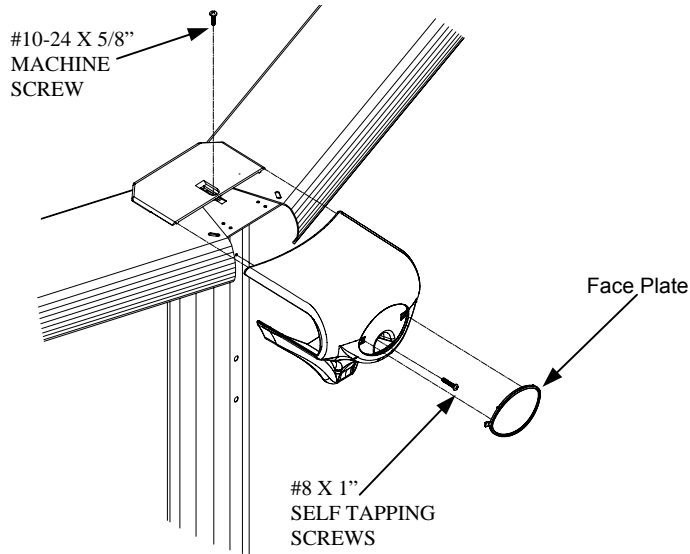
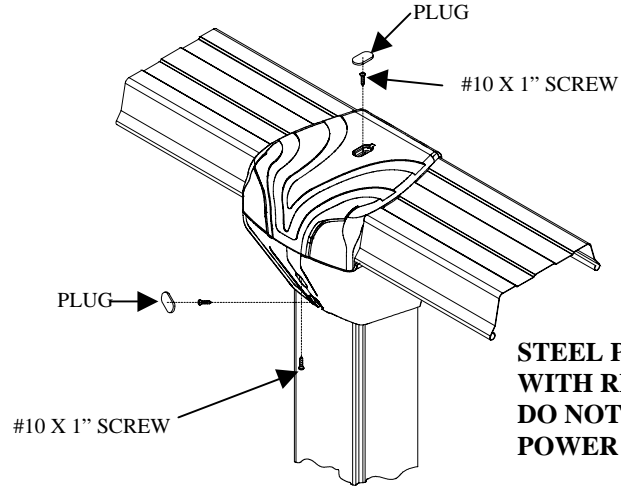
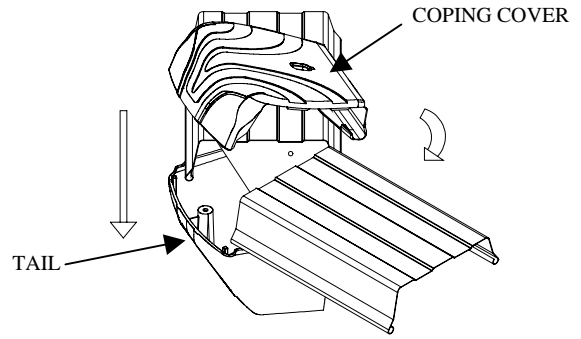
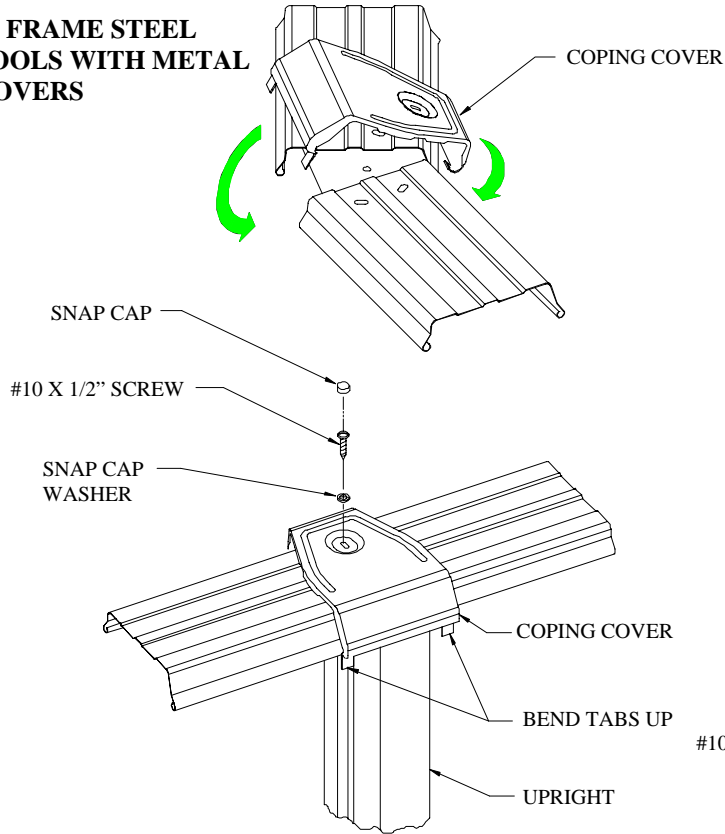


FIGURE 12C

COPING COVER ATTACHMENT FOR STEEL POOLS

6" FRAME STEEL POOLS WITH METAL COVERS



**STEEL POOLS WITH RESIN COVE
DO NOT USE
POWER TOOLS**

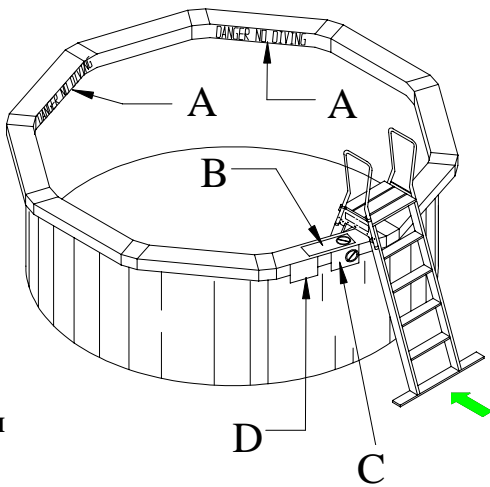
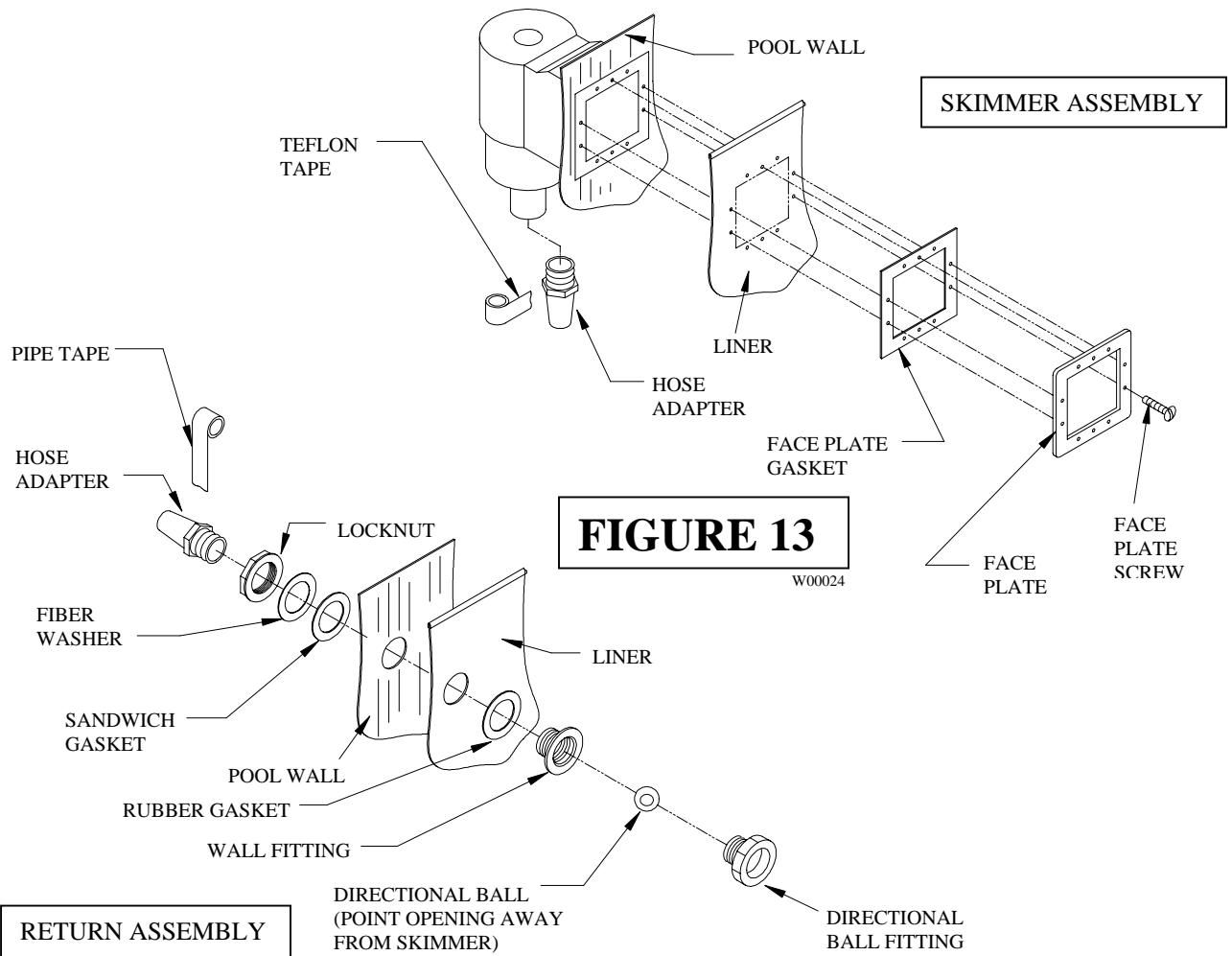
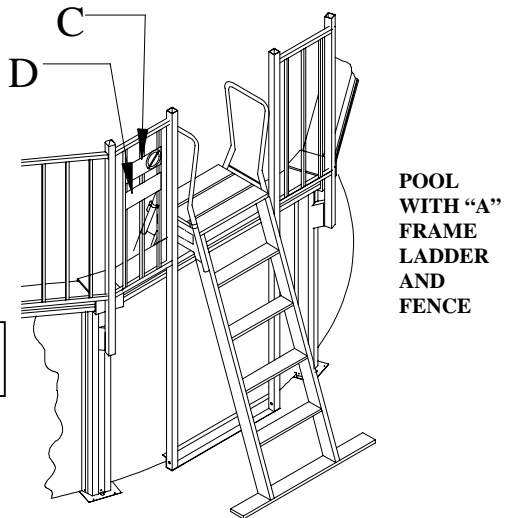


FIGURE 14A
SA00004



NOTE: Refer to Page 2., Warning section for Label Letter Designation

DANGER: When a filter or any other electrical device is added to this pool, it is the responsibility of the purchaser to take all necessary precautions as set forth in article 680 of the National Electrical Code and local electrical codes. Failure to comply with this requirement may result in a dangerous or hazardous electrical condition which may cause bodily injury or death.

installing a fence or deck refer to those manuals for proper placement of safety information.

Step 21: Fill the pool up to the center of the skimmer, make sure that all fasteners are tightened properly and your pool is completely assembled. Please read "The Sensible Way to Enjoy Your Pool" booklet and enjoy years of swimming and relaxation.

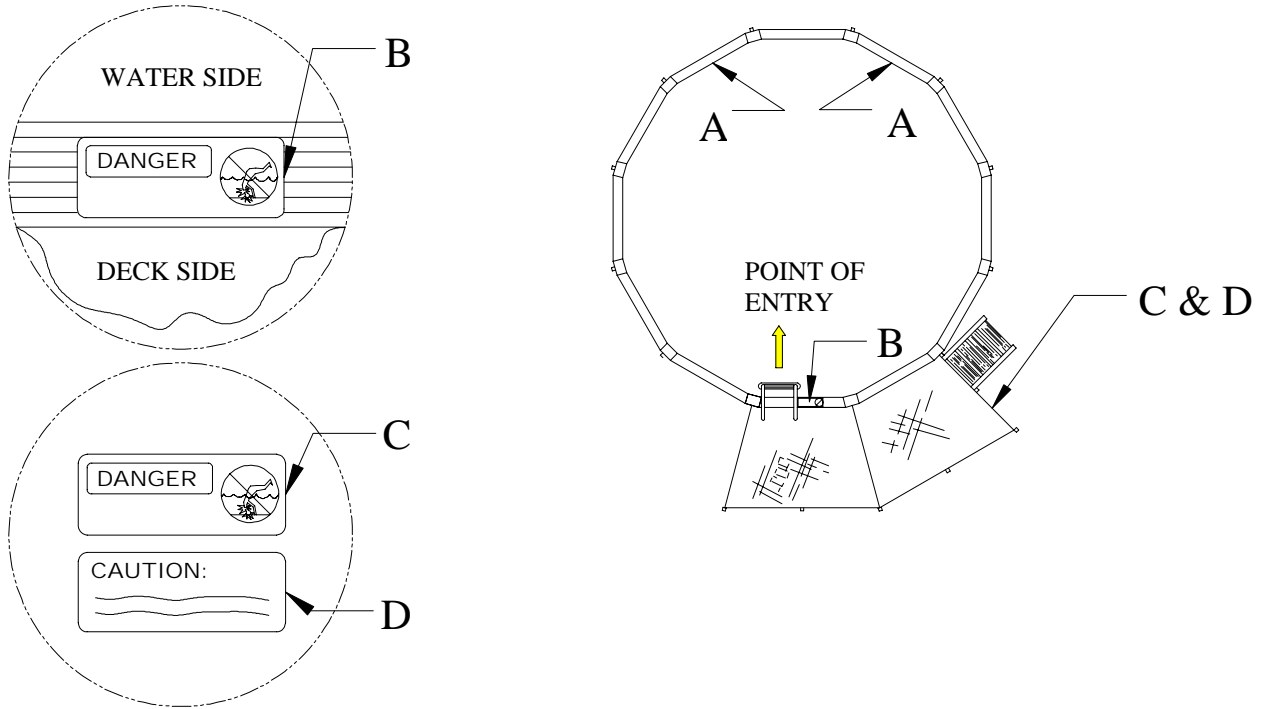
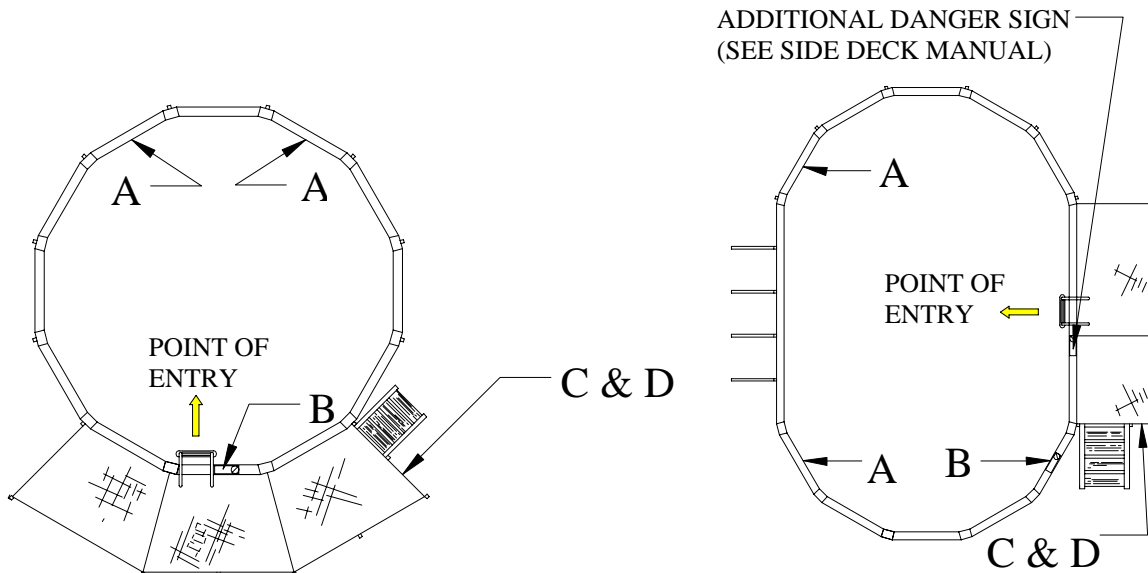


FIGURE 14B

SA00003B



WARNING: After completion of the pool, the pool must never be drained to less than 1/2 full. Damage to the structure and/or liner may result.