

LEAK DETECTION IN INGROUND CONCRETE POOLS

INTRODUCTION

Loss of water in a swimming pool can be attributable to five factors:

1. Splash out,
2. evaporation,
3. filtration/plumbing
4. surface cracks, and
5. Winter time water displacement.

WARNING SIGNS TO LOOK FOR:

- You are adding a lot of water.
- Algae forming too soon after a chemical treatment, indicating that either the homeowner or an automatic filler has been replacing treated water with untreated water.
- Loose or falling tiles or cracking pool decks, pointing to unsettled ground.
- Cracks or gaps in the pool or spa shell or concrete deck, or settling of the vessel into the ground.
- Standing water, mushy spots or uneven grass growth around the pool/spa area.
- The automatic filler continually releases water.
- Water and heating bills run unusually high.

If any of these signs become apparent, an evaporation test should be conducted to confirm the presence of a leak. The test will allow you to compare actual water loss with the actual evaporation rate.

TO PERFORM THE TEST

1. Bring the pool water to its normal level.
2. Securely turn off any auto-fill mechanisms.
3. Fill a 5-gallon bucket with pool water to about 1 inch from the top.
4. Place the bucket on the first or second step of the pool. This keeps the bucket of water the same temperature as the pool water.
5. Mark the water level on the inside of the bucket.
6. Turn off the pump and mark the pool water level on the outside of the bucket.

7. Resume normal pump operation.
8. After 24 hours, compare the two water levels: if the pool water (outside mark) goes down more than the inside water level, you have evidence of a leak. In case of rain, repeat the test.
9. Remember not to backwash filter during this process.
10. Turn off water on any slides.
11. Turn off automatic water leveler if there is one.

As a rule of thumb, losses up to 1/2 inch daily may indicate a combination of evaporation/wind/splash out. Losses up to 2 inches daily more than likely indicate a leak somewhere in the system. More than 2 inches of water loss would normally be caused by a broken pipe, broken or loose fitting or by a visible hole or tear in the liner. Check the following to help determine where the leak is.

Average rates of evaporation can be secured for most areas throughout the country from the local weather bureau. This information is usually stated in inches per month.

EQUIPMENT: Look for leaks in exposed plumbing going to and from the pool at the equipment.

- a) **FILTER:** make a visual inspection. Check all fittings on pressure side for visible water leakage. If you see any leakage, replace fitting or temporarily fix it with silicone. A leaky backwash connection is a frequent cause. Do not take a closed backwash valve for granted. Pump seals are another common cause.
- b) Check all fittings on the suction side (harder to detect). Shut the pump off while looking at fittings, feel for any moisture immediately after shutting pump off. If any leaks are detected, replace the fittings.
- c) Check the dial valve discharge. If you see leakage, replace the valve gasket.
- d) Shut down the filter and plug the skimmer and inlets. If water loss continues, the leakage is possibly in the underground piping. Check the lines by having Ultra Modern Pool & Patio's service department pressure test your re-circulating system.

OBSERVATION: If water loss continues, the leak may be in one of the wall fittings, such as an inlet, skimmer, underwater light, or in the main drain.

MAIN DRAIN, RETURN LINE & SKIMMER FITTINGS: Tests should be made with pool pump in the off position.

Use "Rainbow Leak Detector Test Kit" and check for leakage around fittings. Only enough dye needs to be expelled to dye cloud the water in the immediate area of suspected leak. Visual confirmation of a leak is determined by seepage of dye into the leak.

LEAKS AT LIGHT: Check around the light gasket (faceplate) and around the conduit. If leakage is around the conduit, use a silicone sealant to seal the leak. If the leakage is around a gasket, drain pool below light and replace gasket. Do not drain the pool more than two feet from the normal pool water level or shrinkage of the liner may occur. Consult Ultra Modern Pool & Patio's professional service department for further details.

REPAIR RETURN FITTINGS: Put silicone around the faceplate if it is leaking. If there is leakage in the plumbing, call Ultra Modern Pool and Patio's professional service department for inspection and replacement.

LEAKS AT SKIMMER: If you see a crack in the skimmer body, you can temporarily fix it by using a silicone sealant. Permanent repair involves replacing the entire skimmer. (Option - you can plug the skimmer and turn the skimmer valve off only if the main drain and the skimmer are plumbed separately. For a temporary fix - this can be used to test for leakage in the skimmer and if the water level drops below the skimmer and stops at the light - check the light..

REPAIR MAIN DRAIN: There is no repair for the main drain. You can plug the pipe in the main drain and turn the main drain valve to the off position.

LEAKS IN UNDERGROUND PLUMBING: For leaks in underground plumbing, call Ultra Modern Pool & Patio's professional service department. Their professional service department can check the pressure in the lines to find the location of the leak and replace the lines if necessary.

WINTER TIME DISPLACEMENT: Water displacement in vinyl-liner pools is quite common. Over the winter months, the weight of the snow and ice push down on the cover, which can cause the cover to displace some of the pool water.

The displaced water spills out harmlessly onto the deck, unbeknownst to the pool's owners. When the cover is removed, less water will be found remaining in the pool.

Despite its simplicity, the concept can be difficult for people

to grasp right away. Try the glass of water metaphor — put enough ice in a cup of water and it will spill over — and that usually does the trick.

There are simple ways to prevent substantial water displacement from happening again. We recommend that owners periodically remove the ice from the cover throughout the winter. This essentially removes the weight that causes the cover to dip and displace the pool water. Also sweep off snow with a broom.

If, when a pool's cover is removed, the water appears to have been displaced, do the following:

1. Refill the pool to the desired water line.
2. Wait 36 hours.
3. If the water again has dropped, then perhaps there is a leak. If the water has maintained its level, the pool has suffered from nothing more than a little winter water displacement.

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NOTE: Always follow label directions and manufacturer's instructions for each product used. Conditions may vary from pool to pool. Ultra Modern Pool & Patio does not assume any responsibility or liability for the results that may be obtained through utilization of this or any other program, procedure or product.

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#141

JULY - 2015

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