Pain in the Sump Pump

BY MICHAEL LEIDEN, ACI, SPECTRO HOME INSPECTIONS

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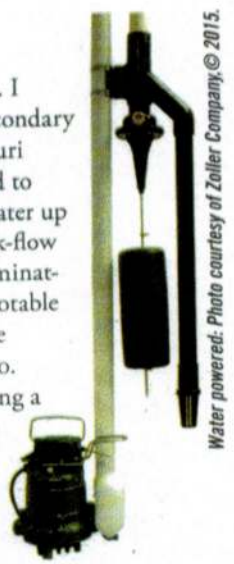
ALL HOMES WITH A SUMP PUMP SYSTEM SHOULD HAVE a backup system in place for when the primary pump fails. Everyone knows an electrical primary pump will not operate if the power is cut off. Using Murphy's Law, this can happen during a storm when the system is needed the most. There are also other reasons pumps fail, for which a backup system can provide you time to make repairs. Some of the breakdowns include: float switch gets stuck or breaks, pump intake gets blocked with mud or stone, waterlogged float, broken impeller or drive shaft, an air-locked pump not pumping, blocked or frozen discharge line. There are several different backup systems you may see out in the field, and each of them has its own pros and pains.

First, I want to talk about an inverter system which gives backup power to the primary pump when the power goes out. This works on a D/C battery connected to a controller that converts the house A/C power to charge and run the primary pump. This power backup usually uses multiple batteries and may only provide a few hours of operation on an average-sized primary pump. As you can see, even if the home has a power inverter backup or even an automatic home generator, the house is still not protected from many of the problems listed above. Having a secondary pump is always better, but may be a tough install in a narrow basin.

Water-Powered

You may have seen water-powered sump pumps. I have seen these used as primary pumps or as secondary pumps. These work on the principle of the venturi effect. Water rushes through an ejector designed to create a pressure drop inside a nozzle to draw water up an inlet line. Water-powered pumps need a back-flow preventer to keep dirty sump water from contaminating the fresh water supply. If you receive your potable water from a well with an electric pump and the power goes out, this system soon goes down, too. These are really not the best choice when assisting a primary pump, which is overwhelmed with too much inflow water entering the sump pit. Many use over 3 gallons of household water to draw out 1 gallon of sump water. This is then sent to an over-saturated daylight area or storm sewer. Most of these installs do not have an alarm to notify you when the pump is activated. It is also very important to know that if the float switch gets stuck in the "on" position, it is like leaving a faucet running and can be costly.



Water powered: Photo courtesy of Zoller Company,© 2015.

Battery-Powered

Battery-powered pumps appear to be the favorite choice for a backup system. These units, along with the inverter system, trickle-charge themselves using a house branch circuit or solar cells. There are two types: AC/DC and DC. The units which run exclusively DC power will only operate from the battery power. AC/DC battery backup systems will switch to DC battery power when the AC power is out or when the primary pump fails. When the power is on, these pumps can run directly off the AC house power without depleting the battery. The AC/DC backup is a valuable assistant for an overwhelmed primary pump. Both of these systems can have many bells and whistles. They can tell you if they were activated, battery condition, if water is nearing the

rim of the pit, and some will even text your phone to let you know of any status changes. Moreover, problems with these, as with other systems, include the lack of maintenance and the neatness of installation; floats tend to get restricted when wires are moving around loose. Choice in sizing to an existing primary is also something that should be considered.

Battery-powered: © WAYNE Water Systems/ Scott Fetzer Company

Battery-powered: Photo courtesy of Zoller Company,© 2015.

All-in-One

Lastly, I would like to mention the all-in-one sump pump units. These systems are a combination of a primary sump pump and a battery backup pump. Two pumps are rolled into one self-contained package having their own power and controls. These systems are easy to install and have all the bells and whistles you may want to find. The design of these systems does tend to give their floats minimal vertical travel distance. Restricting the float in this way can make them cycle on and off more when set at an improper level in your basin. All-in-one units are built with more plastic parts that tend to wear more quickly. Even though the canister or sump liner is made of high-quality plastic, it can nevertheless begin to deteriorate. Repeated use and movement take a toll on these units, causing wear and tear – cracks and splits are the most common signs of damage.

Because a pain in the sump is always present, always know what you have and what the limits are. The security of having a backup sump pump can be a valuable asset when the time comes. A properly installed and understood system can rescue a home from costly water damage and cleanup. ■

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