Fast Fixes for Closet Flanges

A few simple tools and supplies take most of the misery out of repairing these critical plumbing fittings

by Kenny Hart

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In residential plumbing, brass, copper, and cast-iron closet flanges have largely been replaced by ABS and PVC flanges. Other than that, today's closet flanges look essentially the same as those made 50 years ago.

They also suffer from many of the same problems. And when closet flanges break or are improperly installed, toilet bowls can rock and shift position, allowing water to leak out and foul gases to escape. This can lead to structural damage and unsafe and unsanitary conditions.

While plastic flanges perform just as well as their metal counterparts when they're properly mounted and securely anchored to the floor, they are somewhat less forgiving of installation errors. Fortunately, repairing or replacing a damaged plastic flange is often easier and safer than replacing a damaged metal flange, which can involve soldering, pouring lead, and working with a flame around dangerous gases.

Repairing a Broken Flange

Plastic closet flanges are especially susceptible to breakage when the toilet is overtightened or when the flange isn't attached evenly to the floor. The breaks generally occur at the bolt slots, since the rim of the bolt slot is the weakest part of the flange.

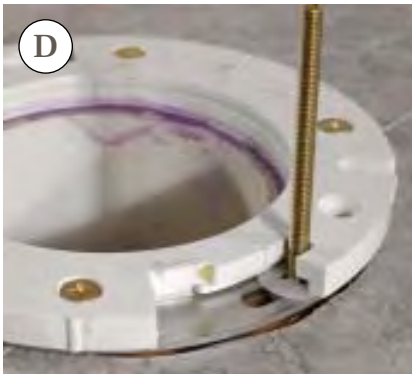


Figure 1. Spanner flanges (A) make repairing broken bolt slots easy. First, the author removes the screws holding the closet flange in place; then he inserts the closet bolt (B). Next, he slides the spanner under the broken portion of the flange (C). While reattaching the closet flange to the floor, he threads some screws through slots in the spanner flange to help hold it in position and strengthen the assembly (D).

Because two bolts are required to properly hold a toilet bowl, a break at either one of the two slots can make it impossible to pull the toilet tightly against the flange and the floor.

This problem can be fixed with an inexpensive, crescent-shaped metal part called a spanner flange (see Figure 1). Slipped underneath the edge of a broken plastic or metal flange, the spanner flange bridges the broken area and provides a secure mount for the closet bolt.

Some spanner flanges have predrilled holes that allow them to be easily anchored or screwed in place, but in some instances anchoring to the floor is not possible or even necessary.

When only a small section of the closet flange has broken away, for example, a heavy spanner alone can provide sufficient strength once it's slid securely under the remaining portion of the damaged flange. With larger breaks, however, I try to anchor the spanner with screws when working above wood flooring, or with lead anchors when working over concrete.

Sometimes the top of the closet flange is set below or even with the floor surface, which can make it difficult to slide the spanner flange into position under the broken flange. In such cases it's usually easier to simply anchor the spanner in place on top of the flange instead of underneath it.

When both sides of the flange are broken, I use the Super Ring closet ring replacement (Superior Tool Co., 800/533-3244, www.superiortool.com; Figure 2, page 3), which is rugged and stronger than many new flanges. The key to a successful repair with the Super Ring is getting it to sit tight against the existing flange.

Because the Super Ring isn't very

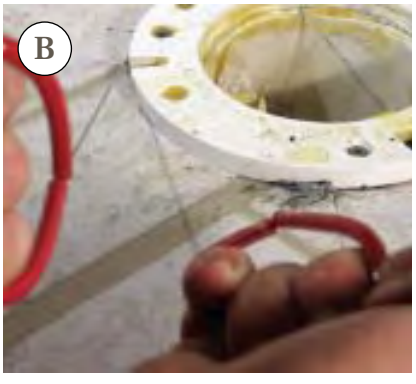
Figure 2. When both bolt slots are broken, the author installs a closet ring replacement over the existing closet flange (A). After marking and drilling holes in the slab for anchors, he applies a bead of silicone caulk (B), then positions the ring on top of the existing flange and sets the anchors (C). With the wax ring in place, the flange is ready for toilet installation (D).

thick, it can be used with both flush-mounted and surface-mounted flanges. But occasionally I find that when the ring is installed on a raised flange, one or more of the outer perimeter ears needs to be trimmed with a hacksaw or grinder to prevent it from hitting against the outside base of the bowl.

Removing a Plastic Flange

Unlike a lead joint that can be melted or picked apart, a solvent-welded plastic joint can rarely be separated cleanly, if at all. So if it's possible to get access below the flange via a crawlspace or a

Figure 3. The author uses a small shaft-mounted saw blade powered by an electric drill (above) to separate a plastic closet flange from its drain without disturbing the finish flooring (left).



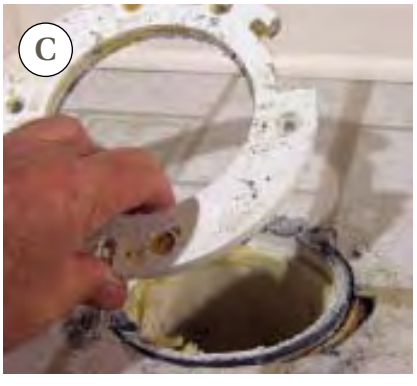


Figure 4. In cases where a closet flange is surface-mounted (rather than flush to the floor), the author slips a simple cable saw (A) under the flange and pulls it back and forth in a sawing motion to cut through the plastic (B). He removes the damaged flange (C), cleans up the cut with a utility knife (D), and then installs a replacement flange that slips inside the existing drainpipe.

basement, cutting the plumbing back and installing a new section of pipe and flange is sometimes easiest.

However, when the toilet sits above a finished ceiling or is on a concrete slab, I remove as much of the damaged flange as possible from above and then use one of several specialty flanges on the market to replace the damaged flange.

There are a couple of different tools that help me do this. One is a miniature circular-saw blade (Atlanta Special Products, 800/327-3552, www.pace-asp.com) attached to a shaft mounted on an electric drill (Figure 3, page 3). The saw cuts through the walls of the flange hub and pipe from the inside. This technique makes quick work of flange removal, though it does require a strong, steady hand for clean cuts.

Personally, I usually prefer to use a cable saw. Working with this tool takes a little more time and effort, but it's less likely to damage the floor covering around the flange.

A cable saw is basically a heavy steel leader wire that you slip under the flange surface just above floor level and pull back and forth in a sawing motion to cut through the PVC flange (Figure 4). These saws are sold at plumbing and hardware outlets, but you could also probably fashion one from items found in your fishing tackle box.

Replacing a Flange

Once I've removed a flange, I can replace it with any of several different types of plastic flanges designed for retrofitting into the remaining drainpipe.

For example, Oatey's cast-iron flange replacement (888/466-2839, www.oatey.com) has an expandable gasket; once the fitting has been inserted into the existing 4-inch cast-iron or plastic drainpipe and

Figure 5. This plastic replacement flange has an expandable gasket, allowing it to be used with both cast-iron and plastic pipe (A). Replacement flanges also come in various diameters to fit 3- and 4-inch PVC and ABS drainpipe (B). After priming and applying cement to the fitting and the drain (C), the author inserts the new flange (D).

secured to the floor, the gasket seals the flange to the inside pipe wall. This fitting comes in both PVC and ABS plastic (Figure 5). Plastic replacement flanges are also available in sizes that fit tightly inside 4-inch and 3-inch PVC and ABS plastic pipe. Once the top or flat portion of the old flange is removed, these fittings are solvent-welded inside the pipe.

Whenever I'm using a 3-inch replacement flange, I check the outlet of the toilet bowl to be sure it will fit inside the flange opening. If it won't, I lower the flange so that it sits flush with — or slightly below — the finished level of the

To Caulk or Not to Caulk

Some plumbers, contractors, and home inspectors believe that the joint between the base of the toilet and the floor should not be caulked, reasoning that a caulked joint will prevent a homeowner from detecting when the wax seal has failed. But water that escapes from a tub or a shower door — or that is splashed by overzealous mopping — is far more likely to be a problem when the bowl is not caulked than when it is; many stained ceilings are caused by water flowing under the bowl and through openings around the flange. Caulk also helps hold the bowl to the floor, preventing movement that can cause premature failure of the wax ring. For these reasons and others, both the International and the Uniform Plumbing Code require fixtures that come in contact with the wall and floor to be sealed.

Figure 6. When there's minor damage to the flooring around a closet flange, the author reinforces the connection between the flooring and closet flange with galvanized steel flange support plates (above). He screws the plates to sound flooring either in front of or behind the flange (right) and then fastens the flange to them.

floor; the flange and bowl outlet should not touch when the bowl is set. No matter what fitting I use, I make sure it's screwed or anchored firmly to the floor. Otherwise, the flange could be pulled loose as the toilet is tightened above it.

I've seen flanges fastened with drywall screws and even 16-penny nails, but I always opt for tapered brass or stainless steel wood screws; they should have wide heads that won't pull through the flange and be long enough to fully penetrate the subfloor (1¼ inches is usually fine).

Reinforcing Damaged Flooring Around the Flange

It's not uncommon to pull a toilet from the floor and find serious damage to the wood immediately around the flange. While rot is usually the culprit, sometimes the damage is as much from the original installer's overcuts as it is from a leaking seal.

If there isn't a solid surface for screws to grab hold of, the plumbing alone will end up having to support the flange. With some cast-iron plumbing you might get away with this, but not with plastic plumbing.

Of course, the best way to take care of this problem is by repairing or replacing any damaged framing, flooring, and subflooring so that the flange can be securely fastened to sound material. But when repair isn't an option or when damage is limited, I use flange support plates to reinforce the floor and provide a solid anchoring surface.

These heavy-gauge galvanized steel plates — which come in pairs shaped to fit under most bowls — slide under both sides of the flange and extend to areas where there's likely to be sound wood (Figure 6). The installer screws the plates to the flooring, then drills holes in them and screws the flange to the plates.

Flange supports aren't usually visible beneath an installed toilet, but when the fit isn't perfect, I cut and customize the plates for a clean fit, using a hacksaw or grinder.

Extending a Flange

Ideally, closet flanges should be set so that they rest on the finished floor, but during the rough-in process, they are often installed too low.

On a slab floor, for instance, the flanges might get mistakenly glued in place below the finished level when the plumber sets

Figure 7. Flange spacers (left) can be used to raise a closet flange installed below the level of the finished floor (above). Multiple spacers are fine, but each must be sealed to the surface below with silicone caulk and securely fastened to the flooring.

them before the concrete pour.

Sometimes flanges are set too low because of changes in floor coverings: Perhaps the homeowners belatedly decided they wanted to switch from the original plan's vinyl to a thicker tile floor.

When flanges are only slightly low — 3/4 inch below a slab floor or 3/8 inch below a wood floor — I compensate with 3-inch closet bolts (standard bolts measure 2 1/4 inches long) and double the wax rings.

But with truly low flanges, I install a flange spacer, which is essentially the top portion of a flange sealed to the original flange surface (Figure 7).

Since flange spacers are easy to install and inexpensive, I use them whenever I'm in doubt and don't want to risk a leak; multiple spacers are acceptable as long as they are sealed between each layer. (Keep in mind, though, that some manufacturers recommend no more than three.)

After I stack and seal the spacers — some manufacturers specify RTV (room temperature vulcanizing) silicone caulk, but some designs can be solvent-welded together — I drive long screws or anchors through the layers until either the screw threads into the subfloor or the anchor penetrates any concrete around the drainpipe.

Figure 8. Plastic shims help prevent a toilet from rocking on uneven flooring.

Then I set the toilet in the normal fashion with a wax ring and closet bolts.

Even with a good solid flange, toilets installed on uneven floors can rock. This motion can work the wax ring loose or cause it to be pressed from under the bowl or into the drain.

To steady the bowl, I use lead or plastic wedge-shaped shims (Figure 8); I keep them in place and out of view by pressing them just under the edge of the bowl and sealing the bowl to the floor with caulk.

Another option is to apply tile grout — rather than caulk — around the base of the bowl to hold the shims in place. Once the grout sets up, it fills in the uneven gaps around the bowl and provides some additional support.

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