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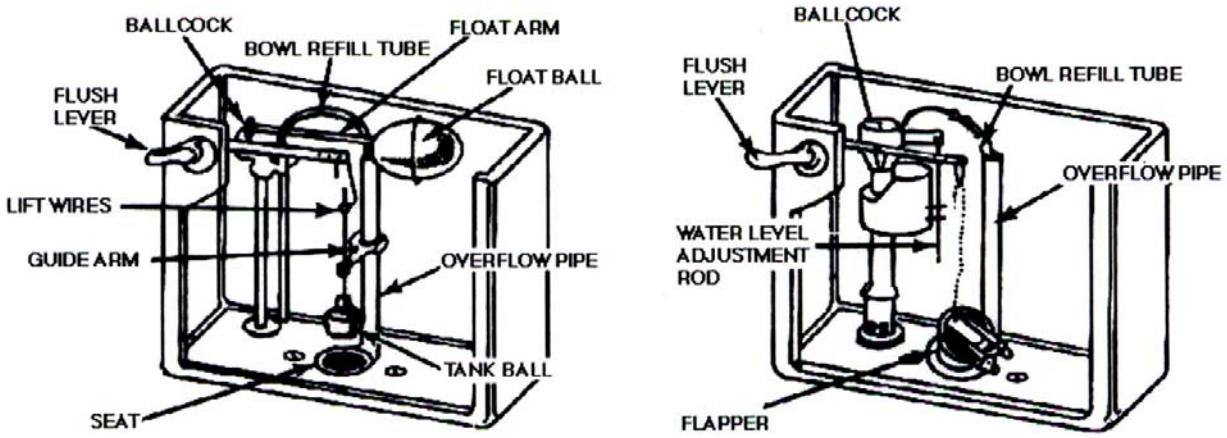
TOILET REPAIR

Modern toilets consist of two parts. When you trip the handle, the water held in the **tank** is released into the **bowl**. Some of the water flows through port holes just beneath the rim of the bowl (to wash the sides), but most of the water is sent directly into the bowl itself, where the force of the inflow starts the flush. The way this process works has changed little for more than a century, because the design functions so well. And, most of the time, little goes wrong. However, everyday use does cause wear and tear on the parts, so most homeowners will eventually need to make minor repairs to their toilet.

There are two systems that can cause problems. The first involves the **flush valve** that opens to release water from the tank and then closes at the end of the flush. In some toilets, the flush valve is a rubber or plastic ball that sits over the outflow tube, while newer toilets will have a flapper valve instead of the tank ball *(see illustration below).* If this valve doesn't seat itself properly at the end of the flush, the water will continue to run until you jiggle the handle to reseat the valve. This problem usually occurs with tank balls; flush the toilet and check to see if you need to adjust the lift wires that align the ball in place to eliminate any obstructions. Or, you can replace the flush ball with a flapper valve that doesn't have guide wires to get hung up, but instead has a lift chain between the handle lever and the flapper valve.

If you have "ghost flushes" in the middle of the night, the problem may be a slower leak around the flush valve. Water seeps into the bowl, the level sinks in the tank, and the toilet refills. You can test to see if this is your problem by adding a bit of food coloring to the water in your tank; if the color shows up in the bowl without a flush, then there is a leak around the flush valve. This problem is usually caused by a breakdown in the rubber or plastic material in the flush ball or flapper valve, so replacing it will solve the problem. The parts are inexpensive, easy to find, and simple to install by following the directions on the package.



Old Style vs. Newer Style Tank Parts

(continued)

The other system that can cause problems is the mechanism that controls the water supply to the tank. After a flush, when the tank has been emptied, a valve opens to refill the reservoir with fresh water. This **water supply valve** (generally called a ballcock) is controlled by a float that stops the water from entering the tank when the level has reached a pre-set height. In older toilets, the float is a hollow metal ball, connected to a float arm. that rides on top of the water. Newer floats look like small plastic cups, and move up and down on the ballcock shaft. An overflow tube prevents the tank from overflowing if the ballcock fails to close off the water when the tank has been refilled.

If your toilet does not turn off after you flush, even after you jiggle the handle, the problem is most likely in this assembly. The first place to look is the float. If your toilet still has one of the older ball floats, check to see if is getting hung up on something that prevents it from rising as it should; if the ball or the float arm touches other parts of the tank, bend the arm so it moves freely. A leaking ball can also cause problems. Unscrew the ball from the arm rod and shake it to see if there's water inside; if so, replace it.

Repairing a float cup is a bit more complicated, because the cup is part of the larger ballcock assembly. As with the ball float, the cup's movement can be obstructed, usually by scale or corrosion on the ballcock shaft. If that is the problem, polish the shaft with fine steel wool. If the cup itself leaks, you'll need to replace the entire ballcock assembly, a relatively simple and inexpensive task *(see below).*

If the problem is not in the float, you'll have to look at the ballcock valve. After turning off the water supply and flushing to remove the water from the tank, take out the two screws from the ballcock lever mechanism, slip out the float arm and pull out the plunger inside the valve. Check for sediment or corrosion that could be affecting its function, and remove it with steel wool. At the same time, replace any worn parts (O-ring, packing washer, and plunger washer) before reassembling the ballcock.

Low-cost ballcock assemblies are readily available, if you need to replace the entire mechanism. Close the shut-off valve feeding water to the toilet, flush, and mop up any water that remains in the tank. Then, unscrew the nut at the bottom of the tank that holds the ballcock assembly in place. (If you can't loosen the nut, use a hacksaw blade to cut the shaft between the nut and the bottom of the tank.) If you have a float ball, slip its float arm from the ballcock assembly. Then, unclip the small bowl-refill tube from the overflow tube and lift the ballcock out of the tank. Reverse the process when installing the replacement mechanism, following package directions to set the water level.