How to Fix a Running Toilet

Diagnose and Repair the Most Common Causes of a Constantly Running Toilet

FREE DIY GUIDE

This guide is provided as a free educational resource.
Always prioritize safety and consult a licensed professional for complex issues.

Disclaimer: This guide is for informational purposes only. The information provided does not constitute professional advice. Always follow local building codes and safety regulations.

Introduction

A running toilet can waste 200 gallons of water per day - that's over 6,000 gallons per month added to your water bill. The good news is that most running toilet problems are caused by a handful of inexpensive, easy-to-replace parts. This guide walks you through diagnosing the cause and making the repair yourself.

How a Toilet Works

Understanding the basic mechanism helps you diagnose the problem:

- Flush handle lifts the flapper via a chain, releasing water from the tank into the bowl.
- Flapper: A rubber seal at the bottom of the tank that holds water in until you flush.
- Fill valve: Refills the tank after a flush. It's connected to the water supply and controlled by a float.
- Float: Rises with the water level and signals the fill valve to shut off when the tank is full.
- Overflow tube: A safety tube that directs excess water into the bowl if the fill valve fails to shut off.

Diagnosing the Problem

The Dye Test

This simple test tells you if the flapper is leaking:

1. Remove the tank lid and set it aside on a towel.
2. Add 5-10 drops of food coloring (or a dye tablet) to the tank water.
3. Wait 15-20 minutes without flushing.
4. Check the bowl. If colored water appears in the bowl, the flapper is leaking.
5. If the bowl water stays clear, the problem is likely the fill valve or float.

Quick Diagnosis Chart

Water running constantly into the overflow tube = Fill valve or float problem

Water trickling from tank to bowl (dye test positive) = Flapper problem

Toilet runs intermittently ("phantom flushes") = Slow flapper leak

Handle is loose or must be jiggled = Chain or handle problem

Tools & Materials You'll Need

- Replacement flapper (universal or brand-specific)
- Replacement fill valve (if needed)
- Adjustable wrench or pliers
- Sponge and towel
- Bucket
- Food coloring (for dye test)
- Wire cutters (for trimming chain)

Fix 1: Replace the Flapper

The flapper is the most common cause of a running toilet. They cost $3-8 and take 10 minutes to replace.

1. Turn off the water supply valve (usually behind the toilet, near the floor). Turn clockwise.
2. Flush the toilet to empty the tank. Sponge out remaining water.
3. Unhook the old flapper from the overflow tube pegs (they usually snap on/off).
4. Disconnect the chain from the flush lever.
5. Take the old flapper to a hardware store to match the size and type.
6. Snap the new flapper onto the overflow tube pegs.
7. Connect the chain to the flush lever. Adjust so there's about 1/2 inch of slack.
8. Turn the water supply back on and let the tank fill.
9. Flush and check that the flapper seals properly and the running stops.

> **Tip**
> If you can't find an exact match, universal flappers work with most toilets. Look for one that matches your flush valve size (2-inch standard or 3-inch wide).

Fix 2: Adjust the Float

If the water level is too high, it overflows into the overflow tube and the toilet runs continuously.

Ball Float (older toilets)

1. Locate the ball float - it's the large ball on the end of a metal arm.
2. Gently bend the float arm downward about 1/2 inch. This lowers the water level.
3. If the ball has water inside it (cracked), replace it by unscrewing it from the arm.
4. Flush and check that the water stops about 1 inch below the top of the overflow tube.

Cup Float (newer toilets)

1. Locate the cup float - it's a cylinder that slides up and down on the fill valve shaft.
2. Find the adjustment clip or screw on the float.
3. Squeeze the clip and slide the float down about 1/2 inch, or turn the adjustment screw.
4. Flush and verify the water level is about 1 inch below the overflow tube.

Fix 3: Replace the Fill Valve

If adjusting the float doesn't work, the fill valve itself may be worn out. Replacement fill valves cost $8-15.

1. Turn off the water supply and flush the toilet. Sponge out remaining water.
2. Disconnect the water supply line from the bottom of the fill valve (have a towel ready).
3. Unscrew the lock nut under the tank that holds the fill valve in place.
4. Remove the old fill valve.
5. Adjust the height of the new fill valve so the top is about 1 inch above the overflow tube.
6. Insert the new valve through the hole in the tank bottom.
7. Hand-tighten the lock nut, then give it a 1/2 turn with pliers.
8. Reconnect the water supply line.
9. Attach the refill tube to the overflow tube.
10. Turn on the water, let the tank fill, and adjust the float as needed.
11. Flush several times to verify proper operation.

Fix 4: Adjust or Replace the Chain

A chain that's too long can get caught under the flapper, preventing a seal. Too short, and it holds the flapper open.

1. Check the chain length - there should be about 1/2 inch of slack when the flapper is closed.
2. If too long, move the chain hook to a closer link on the flush lever.
3. Trim excess chain with wire cutters to prevent tangling.
4. If the chain is corroded or kinked, replace it (most new flappers come with a chain).

Prevention Tips

- Replace the flapper every 4-5 years as preventive maintenance
- Avoid using drop-in tank cleaning tablets with bleach - they deteriorate flappers faster
- Don't use the toilet tank as a shelf (items can fall in and damage components)
- Check the tank components annually during your regular home maintenance
- If you have hard water, mineral buildup can affect valve performance - consider a water softener

When to Call a Professional

While many minor plumbing issues can be handled as DIY projects, some situations require the expertise of a licensed plumber. Call a professional if you encounter any of the following:

- The toilet continues running after replacing the flapper and adjusting the float
- The toilet rocks or is loose at the base (wax ring may need replacement)
- You see water leaking from the base of the toilet
- The tank is cracked
- You need to replace the entire toilet
- The shutoff valve behind the toilet is stuck or leaking
- You hear water hammer (loud banging) when the toilet fills
- Sewage odors are coming from the toilet despite normal water levels

Why Hire a Licensed Plumber?

Licensed plumbers have the training, tools, and experience to diagnose problems accurately and make repairs that meet local building codes. Attempting complex repairs without proper knowledge can lead to water damage, health hazards, or code violations that cost far more to fix later.

A professional plumber can also provide preventive maintenance to help you avoid costly emergency repairs down the road. Regular inspections and maintenance are the best way to protect your home and your investment.