HOMEOWNER REPAIR GUIDE

FAUCET REPAIR

There is nothing more annoying than a dripping faucet. Not only does it waste water, but the repeated action of the water can also cause a spot in the sink surface below. Whether you have a single spout faucet or a mixing faucet (two separate units that share the same spout), fixing the problem is usually fairly simple. (The two units that form a mixing faucet are repaired separately.)

With both traditional **compression faucets** and the newer **"washerless" faucets**, leaks can originate in several areas, so it's a good idea to replace all the parts that can wear out while you have the faucet apart.

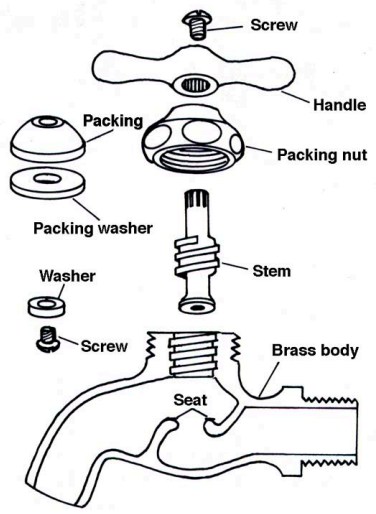
BEFORE YOU START

The first step is to turn off the water to the faucet. If you don't have shut-off valves on the hot and cold water supply lines under the sink, you can usually find the zone valve in the basement that controls the water supply to that part of the house. In a pinch, you can use the main water shut-off near the meter that controls water for the entire house. When you have closed off the valves, turn on the faucet until the water stops flowing. Then close or cover the drain, to prevent losing small parts.

REPAIRING A COMPRESSION FAUCET

REMOVE THE HANDLE

To disassemble the faucet, remove the screw that holds the handle in place. (Sometimes there will be a cap that you'll need to pop off to expose the screw beneath it.) If the handle has corroded in place and is difficult to budge, don't apply penetrating oil or other lubricant, as they will have little effect on the problem; instead, try using two screwdrivers, one on each side, to pry it off. Tapping the handle lightly with a hammer can also help to break the corrosion. If nothing else works, you can rent or buy a special handle-pulling tool.



Compression faucet parts

CHECK THE VALVE STEM

Once the handle is off, you'll see a **valve stem** sticking up, connected to a **packing nut**. Before you separate these two pieces, check to see if there is any "play" in the valve stem when screwed into the packing nut; if so, the valve stem has worn down and needs to be replaced. (Take the one you have to the hardware store to find the correct replacement model.) Next, unscrew the packing nut and separate it from the valve stem, using a crescent wrench or an open-end wrench of the right size.

REPLACE THE WASHER

You will find a **washer** on the end of the valve stem, held in place by a screw at the tip. This washer fits into a metal depression or "cup" at the end of the valve stem itself; if the washer no longer makes a good seal against that cup, your faucet will drip even when the water has been turned off.

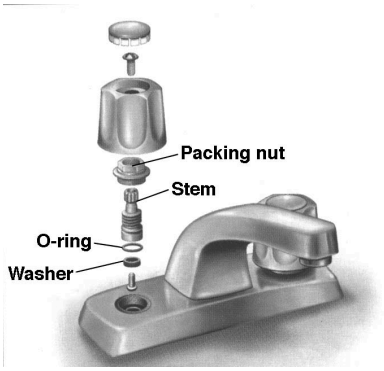
Put the valve stem back onto the handle to help you hold it, and remove the screw on the end. Remove the worn washer that was beneath the screw, and get a replacement of the same size; at most stores you can buy a single washer or an assortment of various size and types. Put the new washer in place, and tighten the screw down till it's snug (don't over-tighten). The washer should expand slightly as it is compressed to fill any gaps in the cup at the end of the valve stem.

THREE GENERAL STYLES OF WASHERS	
Flat	Flat on both sides
Domed	Flat on one side and domed on the other – you will generally get the best seal if you use a domed washer
Beveled	Flat on one side and beveled on the other

REPLACE THE PACKING OR O-RING

Next, locate the packing nut that you removed earlier. Where it goes into the valve body there is space for another washer. You can use a **packing nut washer** here, or you can use **"packing,"** a type of string gasket that you make yourself. Wrap the packing around the spindle, and then reassemble the nut with the valve stem. (Put plumber's grease on the threads to make it easier to disassemble the unit next time.) When the nut is finger tight, cut off the excess packing string and finish tightening with a wrench.

On some faucets, instead of packing you will find an **O-ring** higher on the valve stem. When water comes out from underneath the handle when you turn on the faucet, it's an indication that the O-ring should be replaced. Cut off the old one and take it with you to the store to match; you can buy kits with assorted sizes, or the specific one you need. To install the replacement, soak it in a cup of hot water for a few minutes to make it more pliable, then take it out and put plumber's grease on it. Slide the O-ring over the valve stem and roll it down the shaft until it is in place.



Packing nut, stem, O-ring and washer

CHECK THE SEAT

Finally, look at the **seat**, the part of the faucet which mates up with the valve stem. Replacing a washer won't correct a leak if damage to the seat has left holes or cracks that prevent the washer from sealing completely against the surface. In such cases, you'll continue to have a small drip. How you remedy this problem will depend on whether or not the seat in your faucet can be replaced.

Replaceable seat	If you look into a faucet seat that is replaceable, you'll see squared edges (like a nut). You can use a steel **seat wrench** to grab these edges and unscrew the seat. Seats can be very hard to pull out. One approach is to insert the tapered end of the seat wrench and tap it with a hammer to drive it into the seat before you turn it to loosen the seat. There are many configurations of faucet seats, so take the old one with you to the plumbing store to match it up. When you install the replacement, use the seat wrench to screw it into place. It just needs to be snug, so don't over-tighten.

Non-replaceable seat	On faucets where the seats are not replaceable, the seats will not have square sides, but only a smooth round edge with no surface to grab onto. Your only recourse will be to use a **seat dresser,** a cone-shaped tool that you insert into the seat and turn. As you twist the handle, the seat dresser will shave off the edges of the seat, smoothing out any chips or gouges. If the seat is too badly damaged for the seat dresser to be effective, you will have to replace the faucet completely.

REASSEMBLE

When you have replaced all the parts prone to wear and tear, reassemble the valve stem, packing nut and handle, turn the handle to the proper position, tighten the packing nut, and turn the water back on.

REPAIRING A "WASHERLESS" FAUCET

There are several common types of "washerless" faucets: **ball faucets** (such as the ones made by Delta), **cartridge faucets** (such as the ones made by Moen), and **ceramic-disc faucets** (such as the ones made by American Standard and Kohler). Most have a single handle that controls both hot and cold water. Despite their name, these faucets do have some washers in them.

BUY A REPAIR KIT

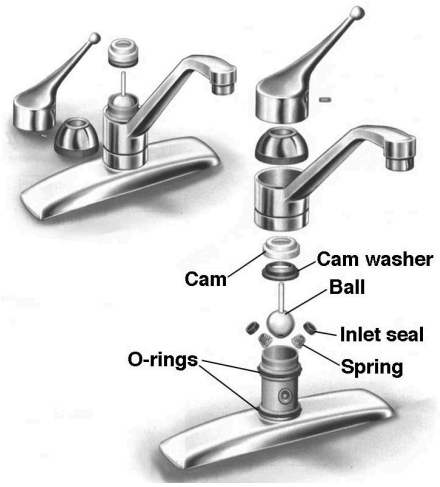
The replacement parts are generally inexpensive and easily available; however, the specific items you will need and the way they are replaced will depend on the manufacturer. It's usually easiest to buy a repair kit for the make and model of your faucet at the plumbing supply or hardware store. The kit will contain all the washers, springs, O-rings, etc. you'll need to replace.

The first step is to remove the faucet handle. Before disassembling the faucet, shut off the water supply and close or cover the drain as described above.

BALL FAUCETS

With a ball faucet, you loosen the screw in the base of the handle and lift the handle off the spout.

Leaks from beneath the handle. Water leaking from beneath the handle of a ball faucet is corrected by tightening the adjusting ring, a threaded washer that you see when you remove the handle. Place a putty knife in the slots on top of the washer and turn it clockwise. Replace the handle and test the faucet; if it still leaks, tighten the ring a bit more. Sometimes tightening the ring will make the handle too hard to move. If this happens, unscrew the ring and then the domed metal cap beneath it, and lift out the plastic and rubber cam assembly below the cap. These cam parts can be replaced.



Ball faucet

Leaks from the spout. If water leaks from the spout, you'll need to get to some parts that sit below the cam assembly. The ball, O-rings, seals and springs are subject to wear and need to be replaced periodically. Remove the old ball, and then twist the spout upward to remove it from the faucet's central tube. Once you have exposed the faucet body, use a screwdriver to pry off the O-rings surrounding it; then use needle-nose pliers to remove the small rubber seals and the tiny springs that fit into the faucet's inlet holes. The replacement parts must match the

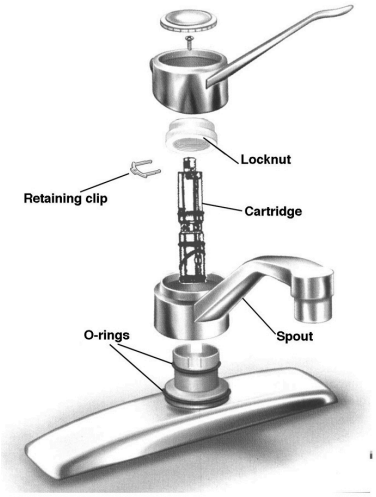
old ones exactly, although you can choose either a plastic replacement ball or one made from brass – a more expensive option, but one that will last longer.

Clean all the surfaces and scrape off any mineral deposits, then reassemble the faucet. Use plumber's grease to lubricate the O-rings before rolling them into their grooves on the faucet body. When you reinstall the spout, push down hard while twisting. Then install the springs and seals, and fit the slot of the ball over the pin in the side of the faucet body, so that the ball's ports will be aligned with the hot- and cold-water inlets in the faucet when you want the water to flow. Finish by reassembling the cam assembly and handle. If water still leaks from beneath the spout, tighten the cap; if you have a leak from beneath the handle, tighten the adjusting ring as described above.

CARTRIDGE FAUCETS

On a cartridge faucet, pry off the decorative cap and remove the screw underneath; then, lift off the handle and the handle body, a cylindrical slotted fitting. Before removing the spout, you'll need to unscrew the round retaining nut on top of it.

For leaks from the base of the faucet, remove and replace the O-rings around the faucet body. For other types of leaks, pry out the horizontal metal clip on top of the faucet body, and then pull out the sleeve cartridge from inside it. Buy replacements for the cartridge and the O-rings around it. (Cartridges with brass casings are more expensive, but will last longer.) To install the new cartridge, pull out the stem as far as possible, and press the cartridge into the faucet body. (It's normal for water to pool around the stem when you do this.) Rotate the cartridge until the protrusions at the top are aligned with the slots in the faucet body for the retainer clip; press down on the cartridge and slide the clip under the protrusions and into the slots.



Cartridge faucet

Position the stem so that its horizontal notch points toward the sink. Then, reassemble the spout and retainer nut. To replace the handle, the ringed end must slide into the handle body and the rear end must hook over the rear of the retaining nut. After you have reinstalled the screw, test the faucet.

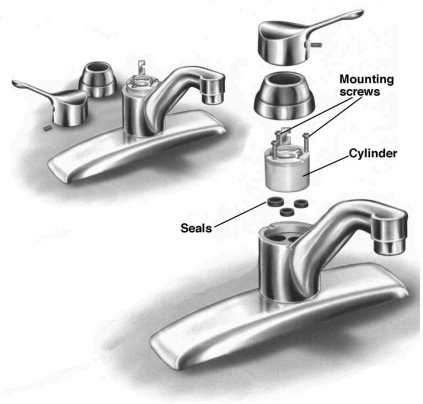
HOT AND COLD REVERSED?

If the hot and cold water positions are reversed, remove the handle, rotate the stem 180°, and reassemble.

CERAMIC-DISC FAUCETS

In a ceramic-disc faucet, the cylindrical valve typically contains two discs; when the handle is moved to the "on" position, one disc rotates over another in such a way that holes in both discs align and allow the water to flow. Start by removing the handle and the locking nut beneath it, and then pry out the cylinder. Because the valve is made from ceramic, a durable material that resists damage from grit and sediment in the water, you will seldom need to replace it. However, the inlet seals and/or O-rings are subject to wear. Replacement parts can sometimes be difficult to locate, but removing the old ones and inserting the new is reasonably simple.

Once you have replaced all the parts, reassemble the faucet and turn on the water.



Ceramic-disc faucet

DO IT YOURSELF

Repairing a leaking faucet is a common home maintenance task. Patience and a bit of manual dexterity can allow you to save the cost of a plumber by doing the job yourself.

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

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