

**EVERY DROP COUNTS!**

# Leak Detector Guide

**Your Guide to  
Home Water Conservation**



MIAMI-DADE WATER AND SEWER DEPARTMENT

# A High Bill Usually Means a Leak

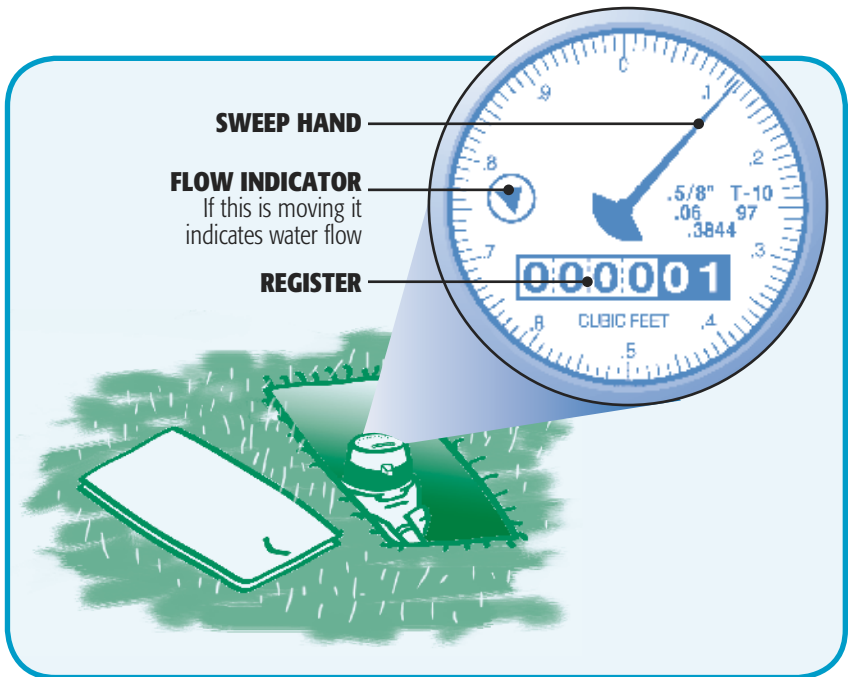
Did you know that approximately 50 percent of all households have some kind of plumbing leak? Most of these leaks are due to worn out washers, flappers or faulty tank valves, which can result in hundreds or even thousands of gallons of water wasted needlessly. Not only is this a waste of natural resources, but it also registers through the meter, which could affect your water bill.

This guide was created to illustrate common home plumbing problems, and will not only save time, but will help avoid costly water bills.



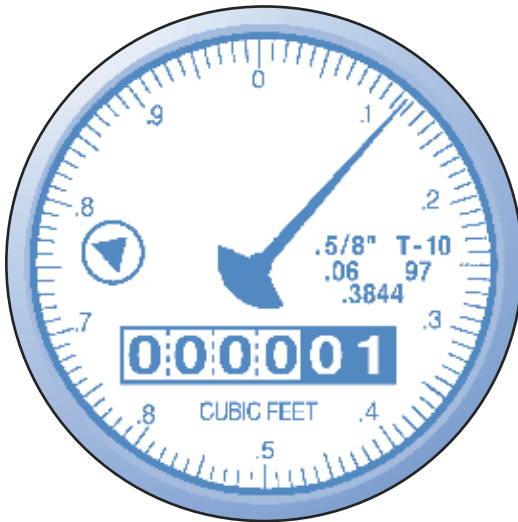
# Where To Start When You Receive A High Bill, Or Think You May Have A Leak...

If you receive a high water bill, or think there may be a leak in or around your home, a good place to start the leak detection procedure is at the water meter. Typically, the water meter is located in the front yard, near the street or sidewalk. Use a screwdriver, (or similar device) to assist with removal of the meter-box lid. Also, have a pencil or pen and some paper handy. Carefully remove the meter-box lid, and set it aside. Then flip the meter lens cap to expose the meter face. Dirt may need to be removed to expose the meter dial. The meter face will look similar to the diagram below.



# Follow These Steps to Determine if the Meter Has Been Misread...

- 1** To determine if the meter has been misread, simply copy down the numbers (from left to right) on the meter's register. (The register looks similar to a car odometer.)
- 2** Compare the numbers on the register to the numbers indicated as the "Current Reading" on your utility bill. The reading from the register should be equal to or higher than the "Current Reading."
- 3** If the reading on the meter is lower than the reading indicated on your bill, the meter may have been misread. Please contact Customer Relations at (305) 665-7477, for a re-read and corrected bill.
- 4** If the meter reading is substantially higher than the reading on your bill, there may be a water leak.



*The Department's meters register in cubic feet. One cubic foot of water is equal to 7.48 gallons.  
100 cubic feet = 748 gallons*

# Follow These Steps To Determine If There May Be A Leak...

Most meter faces have a flow indicator (small in size, red or black in color, triangular in shape – see page 3). If there is no water being used at the time of inspection, and the flow indicator is moving or spinning, this is a good indication that there may be a leak somewhere in or around your dwelling.

Not all leaks are big and clearly noticeable. If the meter does not have a flow indicator or the flow indicator is not moving, continue with these steps to further evaluate the situation.

- 1** Copy down the numbers (from left to right) on the meter's register. Do not use any water for a period of two (2) hours. Take another reading from your meter's register after the two (2) hour testing period, and compare it to the first reading. If the second reading is higher, there may be a water leak.

## *Pinpointing The Possible Leak...*

- 2** To help pinpoint whether the location of the leak is inside or outside the home, close the house shut-off valve (generally located on an outside wall where the waterline enters the home, or near the water heater).
- 3** Repeat step 1 above. If the meter continues to move, the leak may be outside the home in the service line that leads from the meter to the home, or in any water-using device that may be hooked to the system outside the dwelling.
- 4** If the meter does not move after your second test, the leak may be inside the home. This booklet contains helpful hints that may assist with leak detection both inside and outside the home.

# Checking the Toilet

The most common toilet leaks can also be the most costly because they represent the greatest water usage in the home. A leaky toilet can waste over 200 gallons of water per day! Left unfixed, it can waste over 73,000 gallons of water a year. Most toilet flush tanks work in the same way. The tank contains two valves: a flush valve and a refill valve. One type of refill valve is commonly called a ballcock/flush ball valve (Diagram A - bottom of page). The other type of flushtank has modern plastic valves (Diagram B - page 7). Here are some easy ways to check for and fix a toilet leak.

## CHECKING FOR LEAKS

To check both the flush valve and the refill valve for leaks, simply put a couple drops of dark food coloring or a leak detection dye tablet in the tank. Do this when the tank is fully refilled after a flush. Do not use the toilet. Then check the bowl after 20 minutes. If colored water is in the bowl, there is a leak. Depending on the problem, one of the following actions may stop the leak:

### *Adjustment options for the ballcock/flush-ball valves*

- 1 Carefully bend the end of the float arm to adjust the tank water level to below the top of the overflow pipe.
- 2 Replace the float ball which may have filled with water.
- 3 Replace a faulty or corroded float ball shut-off valve.
- 4 Tighten a loose trip handle by turning the nut counterclockwise (looking from inside the tank).

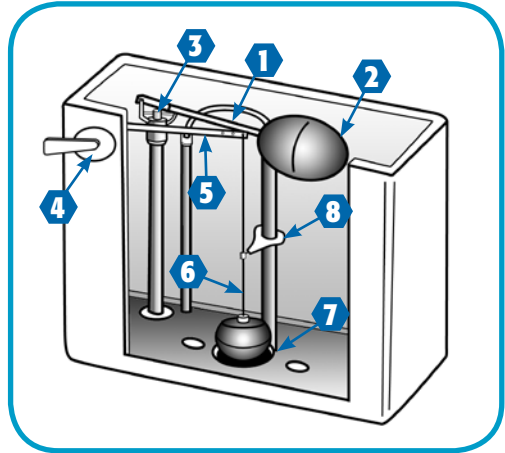


DIAGRAM A

- 5 Straighten the control arm so it is free to move up and down without touching surrounding parts.
- 6 Replace a sticking rod guide or ball rod.
- 7 Clean a corroded brass valve seat with steel wool or with No. 500 wet-or-dry abrasive paper.
- 8 Raise the guide arm if it does not allow the flush ball to rise enough for a complete flush. Be careful not to adjust too high, which will prevent the ball from completely closing.

### ADJUSTMENT OPTIONS FOR MODERN PLASTIC VALVES

- 1 Adjust the sliding pinch clamp on the adjustment rod up to raise the water level or down to lower it. Tank water level should be just below top of overflow tube when toilet has refilled and shut off.
- 2 Reposition bowl refill tube. If it is out of place, water is routed directly into the tank rather than flowing water into the bowl. The refill tube should aim directly into the overflow pipe but should not reach below water level.
- 3 Replace defective refill tube with new plastic refill tube.
- 4 Replace flapper by disconnecting the lift hardware from the trip arm and sliding the flapper 5 up and off the overflow pipe. Install the new unit, reversing directions, and connect the lift hardware back to the trip arm. Cut off excess lift chain 6 or leave dangling if it doesn't interfere with toilet operation.

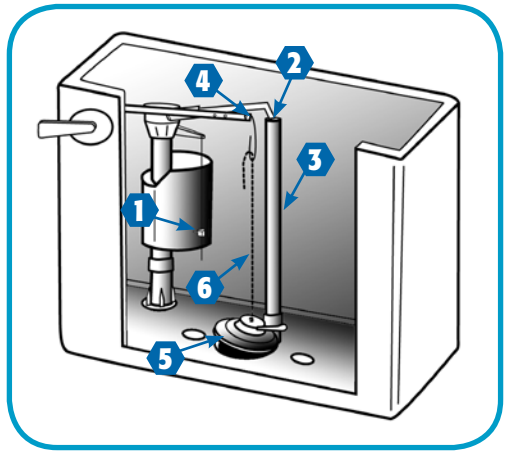


DIAGRAM B

### CHECKING AND CHANGING A FLAPPER IS A SNAP.

For everything you need to know, including which replacement flapper you need, go to [www.toiletflapper.org](http://www.toiletflapper.org)

# Faucet Leaks

Another common source for leaks is the faucet. Whether in the kitchen, bathtub or shower, a leaky faucet can waste more than 20 gallons of water per day. Leaking faucets are usually caused by worn washers or “O” rings. Water lost because of a delay in leaky faucet repair can be more costly than buying replacement parts. The chart below shows how much water a “slow drip” can waste, assuming there is standard 60 psi (pounds per square inch) pressure in your pipe.

## Leak Chart @ 60 P.S.I

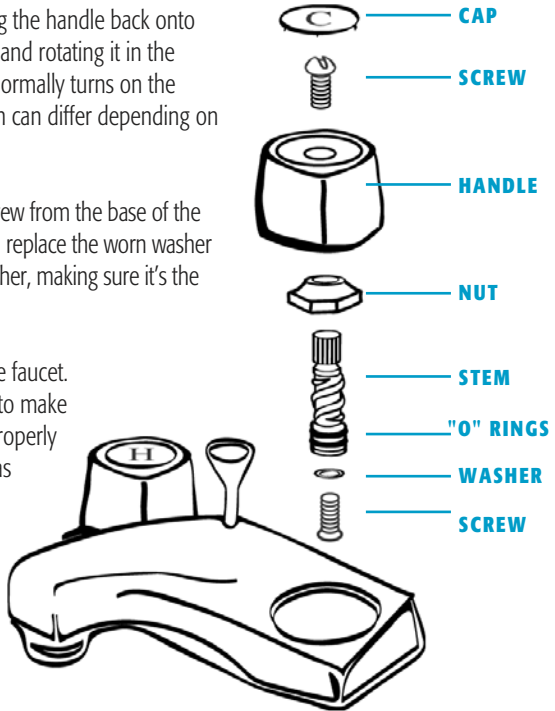
- 1/32" leak can waste . . . .73,992 gallons per year
- 1/16" leak can waste . . . .295,992 gallons per year
- 1/8" leak can waste . . . .1,183,992 gallons per year
- 1/4" leak can waste . . . .4,725,996 gallons per year



# How to Fix Leaking Faucets

(for *compression type faucets*)

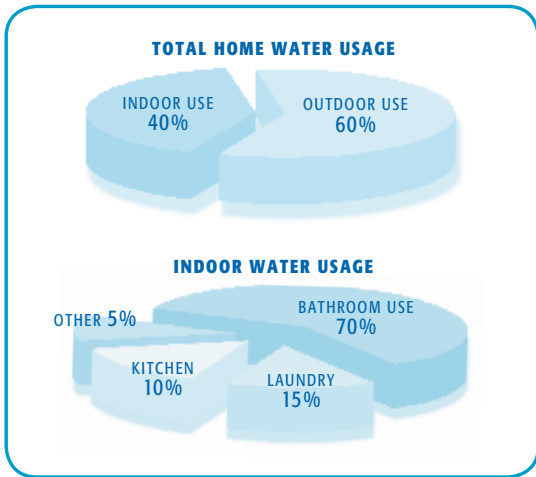
- 1 Shut off the water supply to the faucet being repaired.
- 2 Remove the cap on top of the handle, and remove the exposed screw by turning it counterclockwise.
- 3 Pull off the handle.
- 4 Remove the valve stem from the faucet body by placing the handle back onto the valve stem and rotating it in the direction that normally turns on the water (direction can differ depending on faucet design).
- 5 Remove the screw from the base of the valve stem, and replace the worn washer with a new washer, making sure it's the right size.
- 6 Reassemble the faucet. Turn water on to make sure it works properly and the leak has been repaired.



# Some Interesting Facts and Statistics

About 70% of the typical family's indoor water usage is in the bathroom. This is partly because water is used at a faster "flow rate" in the bathroom than in any other part of the home. Toilets and showers usually have a flow rate of 5-7 gallons per minute; most dishwashers and clothes washers use less than three gallons per minute.

- Toilet . . . . . 5 to 7 gallons per flush (Non high-efficiency toilet)
- Shower . . . . . 5 to 7 gallons per minute (Non high-efficiency shower)
- Bathtub . . . . . 36 to 60 gallons per bath
- Dishwasher . . . . . 10 to 25 gallons per cycle
- Washing machine . . . . . 20 to 45 gallons per load



Miami-Dade residents are encouraged to replace high volume plumbing fixtures for new high-efficiency models.

As an incentive, a rebate of up to \$50 is provided to residents who purchase and install qualifying High Efficiency Toilets (HETs); these are toilets with a certified 1.28 gallons per flush (gpf) or less. A rebate of up to \$10 is also available for the purchase of a high-efficiency showerhead or faucet that has a 1.5 gallon per minute (gpm) flow. For rebate information and an application please visit our website at [www.miamidade.gov/conservation](http://www.miamidade.gov/conservation) or call 311.

# Outdoors

Check the outside faucets for leaking water, particularly during the peak summer watering season. A hose hidden in the grass, accidentally left dripping, can waste thousands of gallons of water over the course of a summer.

## *Outdoor Conservation Tips:*

- Water only when your grass shows signs of stress, wilting or discoloration, or when footprints are visible after you walk on it.
- Add a rain sensor or soil moisture sensor to your lawn sprinkler system. Single-family homes and Homeowner Associations can receive a free landscape irrigation evaluation by the Urban Conservation Unit of the Florida Yards and Neighborhood Program. For program information or to request an application please visit our web site at [www.miamidade.gov/conservation](http://www.miamidade.gov/conservation) or call 311.
- Water only in the morning or evening when evaporation levels are lowest and only during authorized hours and days. In Miami-Dade, it's the law! For residences and businesses ending in an odd-number street addresses (1,3,5,7,9), lawn watering is permitted Wednesday and Saturday, any time except from 10 am to 4 pm. For residences and businesses ending in an even-number street addresses (2,4,6,8,0), lawn watering is permitted Thursday and Sunday, any time except from 10 am to 4 pm. For additional information please call 311 or visit our website at [www.miamidade.gov/conservation](http://www.miamidade.gov/conservation).
- Use sprinkler heads that distribute big drops of water close to the ground. Smaller drops and mist often evaporate before hitting the ground.
- Consider Florida-friendly landscaping which is the planting of native, drought-tolerant, climate adapted plants in your yard. Newly planted Florida-friendly landscaping requires 30 days of irrigation to establish its root system. After this time, natural rainfall is the only water needed!



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*For more information on efficient ways to conserve water or to receive an application for a rebate or landscape irrigation water-use evaluation, call 311 or visit our website at [www.miamidade.gov/conservation](http://www.miamidade.gov/conservation)*



*Special thanks to Pinellas County, Florida for the content of this publication*