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Flush Tank Problems  
Michigan State University  
Cooperative Extension Service  
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# COOPERATIVE EXTENSION SERVICE

Departments of  
Human Environment and Design  
Agricultural Engineering  
Urban Planning and Landscape Architecture

## MICHIGAN STATE UNIVERSITY

Extension Bulletin E-812

### FLUSH TANK PROBLEMS

The flush tank holds enough water to flush the toilet. Once the handle is pulled to flush the toilet the tank should empty and fill again for the next flush and the water should stop flowing into the tank.

Several problems can develop:

- ° Tank continues to run after tank fills
- ° Tank doesn't fill but water continues to run
- ° Tank partly empties
- ° Water leaks on floor
- ° Nothing happens when you push the flush handle
- ° No water pressure available

#### 1. PROCEDURE IF WATER CONTINUES TO RUN AFTER TANK REFILLS.

The problem is the water inlet valve is not seating tight enough to shut the water off. (Figure 1)

To isolate the problem, remove the tank lid. Grab the float and lift:

- a. If the water stops running the problem is in the float mechanism. If the float is over half submerged look for a leak in the float. Check the float and repair or replace. If the float is okeh, adjust the float downward. This can be done by: (a) adjustment screw on top of the ball cock. (b) bending the rod supporting the float. The recommended water level is often marked on the tank wall. If not, the water level should be about 1" below the overflow pipe.
- b. If you cannot stop the water flow by raising the float, the problem is probably the inlet valve in the ball cock.

Shut off the water to the tank by turning the valve below the tank or by closing the valve in the main supply to the house.

Remove the float assembly by unscrewing two thumb screws. This will allow you to lift out the valve.

In other ball cocks, unscrew the two thumb screws on either side of the top assembly and lift it off. The valve assembly should drop out.

- c. Replace the rubber washer in the bottom of the valve. If you do not have a new washer turn the old one over as a temporary repair until you can get a new replacement. Check the size before you reassemble.

Also, check the gasket or "O" ring toward the top of the valve. This should be pliable so it will prevent the incoming water from squirting out around the top of the valve.

Reassemble the valve and turn on the water.

## 2. PROCEDURE IF TANK DOESN'T FILL BUT WATER CONTINUES TO RUN.

- a. The problem is most likely that the tank ball is not seating. Check to see if the linkage is binding or hooked so it does not let the ball go completely down. Or the tank ball might be so old it is wrinkled or cracked so water is running through the tank ball. (Figure 2)
- b. The solution is to buy a new rubber tank ball and/or a new linkage and replace the old worn parts. You might consider replacing the entire tank ball and linkage with a flapper valve.
- c. Due to use, water, and salt deposits, the flush handle might bind and not let the tank ball reseal. Put a few drops of penetrating oil on the handle just inside the tank and wiggle it back and forth. If the handle is rusted so bad it cannot be loosened with the oil a new one will have to be installed. To do this remove the nut inside the tank. This is usually a left handed thread so to loosen you would turn clockwise.

## 3. PROCEDURE IF WATER LEAKS ON THE FLOOR.

Water on the floor underneath the toilet tank may be caused by one of the following: (Figure 3)

- a. Condensation on the outside of the tank due to the cold temperature of the water. This will almost always happen in the summer, when the temperature and humidity are high. In the winter it will not occur.

A solution to the problem might be:

- ° Buy or sew a jacket for the outside of the tank which acts as an insulator.
  - ° Kits of insulation material can be purchased to install on the inside of the tank. These require considerable effort because the inside of the tank must be dry and clean. The insulation must be installed so water cannot seep between the insulation and the tank wall.
  - ° A valve can be purchased which will proportion a fixed amount of hot and cold water into the tank to make the water temperature high enough to prevent condensation. This requires an alteration to the plumbing system but is very effective.
- b. A leak in the water pipe to the tank. The water leaking from this source will usually be in a puddle under the end of the tank where the water pipe connects to the tank. Look under the tank and see if there is an accumulation of salts around the pipe.

Often times a one quarter or one half turn on the nut next to bottom of the tank or on either side of the shut-off valve (if there is one) will stop the leak.

If tightening the nut does not stop the leak it is probably the gasket at the bottom of the "ball cock" where it goes through the tank.

To do this, disconnect the water pipe to the "ball cock". Loosen the big retainer nut underneath the tank and remove the "ball cock" assembly. Replace the rubber gasket and reassemble the unit.

- c. The refill tube may be misdirected so it directs the water against the top or side of the overflow pipe causing it to splash against the top of the tank and running down the outside of the tank. If this happens when you take the top off, readjust to direct water down the filler tube.

The packing or "O" ring on the inlet valve may be worn so when the toilet is flushed and the valve is opened the water squirts out the top of the "ball cock" against the tank top and runs down the outside of the tank.

The procedure for replacing this packing is the same as for replacing the valve seat.

#### 4. PROCEDURE WHEN TANK PARTLY EMPTIES

Sometimes when you pull the flush lever the tank partly empties or the handle must be held down to completely flush the toilet.

- a. Check to see if the mechanism or chain connected to the rubber tank ball is free and not kinked. If so, adjust the length so the rubber tank ball is lifted higher when the flush valve is released. This will allow more time for water to enter the stool.

#### 5. PROCEDURE IF NOTHING HAPPENS WHEN FLUSH HANDLE IS PUSHED

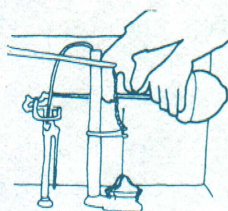
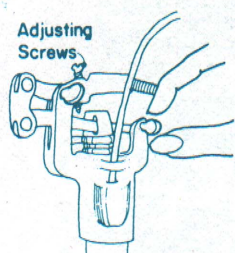
After many years of use the linkage between the handle and the float wears out and becomes disconnected.

- a. Remove the tank top and find out which part is worn out. Replace it with a new part which can be purchased at most stores selling plumbing supplies.

Temporary repairs can be made with a wire or chord if a new part cannot be obtained for several days.

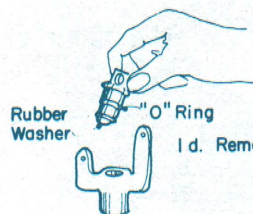
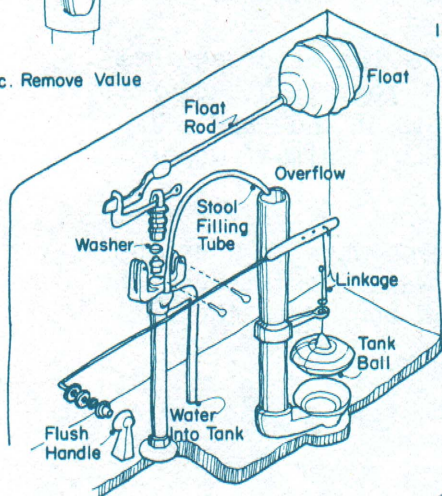
#### 6. PROCEDURE IF THERE IS NO WATER PRESSURE

When the water pressure is gone the flush tank will not fill for the next flush. All that is needed to flush the tank is a big rush of water in the stool so a pail of water dumped into the stool will flush it. Then part of a pail of water must be poured in for the next use.

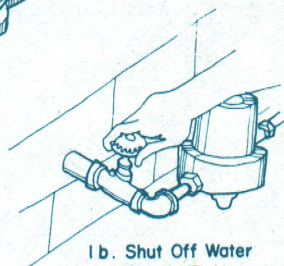


1a. Adjust Float

1c. Remove Valve

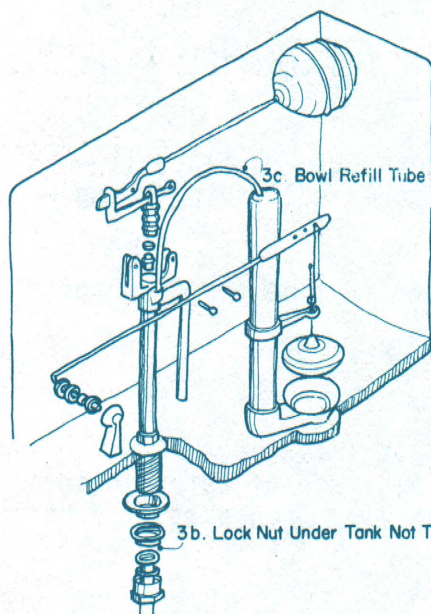


1d. Remove Valve



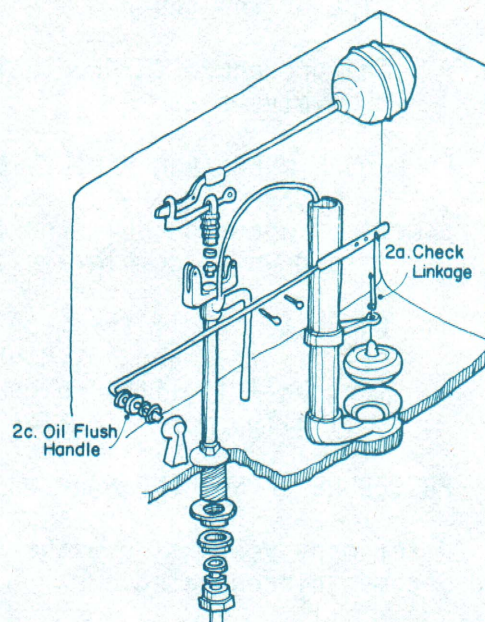
1b. Shut Off Water Supply To House

Figure 1. When Water Runs After Tank Fills.



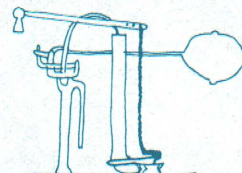
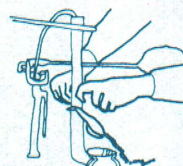
3b. Lock Nut Under Tank Not Tight

3c. Bowl Refill Tube Not Directed Into Overflow Tube



2c. Oil Flush Handle

2a. Check Linkage



2b. Replace Tank Ball With Flapper Valve.

Figure 2. Causes For Water To Run Yet Tank Not Filling.

Figure 3. Causes For Water On The Floor Under Toilet Tank