

# Manual - Water in the Tucson Basin exhibit

## Most important do's and don'ts

### Runninng the model

- Before using the model make sure that the water supply valve has been **fully open for at least 10 minutes**. The submersible pumps will break if they run dry.
- Familiarize yourself with the electrical wiring and plumbing of the model.
- After turning on the rain in both models wait ~one minute and check if rain drops are falling and water is fed into the small sand tank. It has happened when the toilet tank had not been used for a while that the submersible pumps trap bubbles and do not run well. In that case open the front door of the model, tilt the toilet tank a little and tilt the two pumps a little bit back and forth. Make sure that the recycling (overflow) line from the small sand tank is properly attached to the rim of the toilet tank; the end of this tube should not sit under water.
- Check the tanks, pumps and lines, as well as the toilet tank for leaks.
- All drains should have a constant downward slope towards their outflow, otherwise water might back up resulting in flooding.

### Shutting down

- When shutting down the model after use make sure that all the switches are in the off or auto position depending on how you want to operate the model.
- If you run the model in auto mode, make sure that the timer is in the correct position and that it is programmed.
- If the model will not be used for more than a few days, it is recommended to shut off the water supply valve near the tap, and drain the toilet tank. .
- Also cover the models so that they are exposed to a minimum amount of light.

### Maintenance

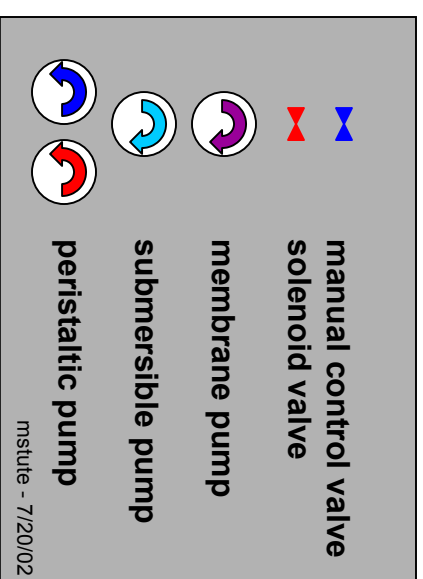
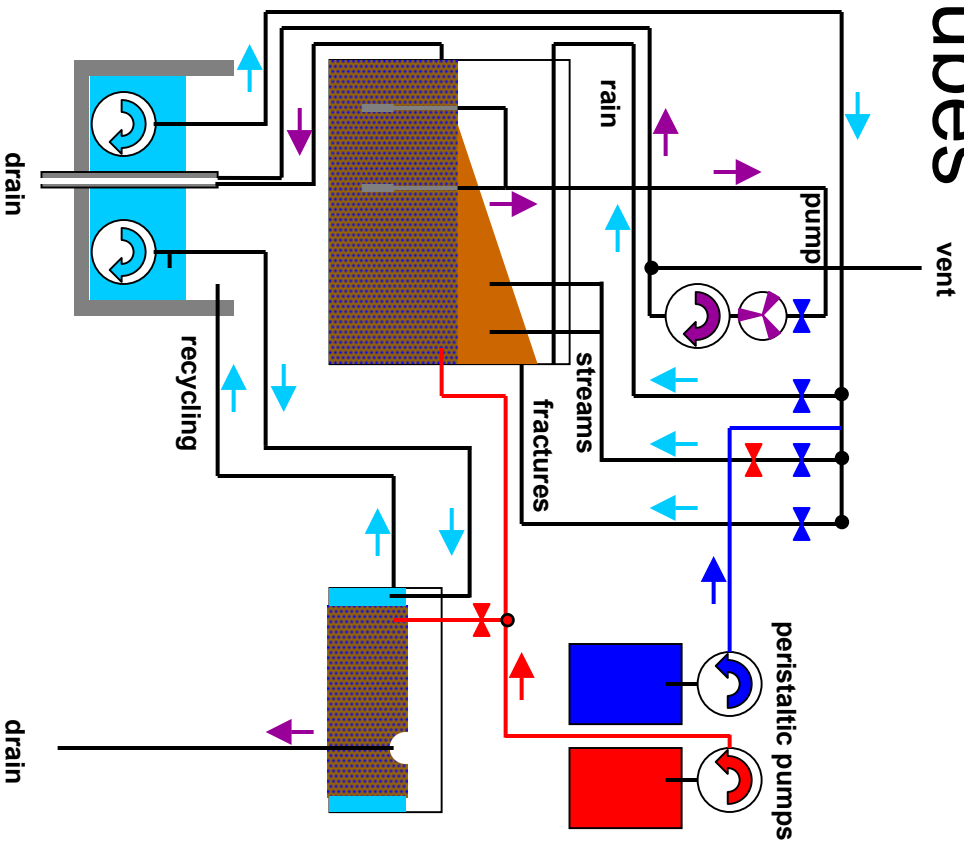
- The peristaltic pump plastic tubes will eventually break and shut probably replaced on a routine basis, my guess is perhaps twice a year.
  - The timer battery needs replacement every other year (1 AA battery).
  - Do not drain the bottles with the dye to more than 10% of their initial content.
  - Mix two bottles (27 or 29ml each) of red or blue dye with 1 gallon of water in the dye bottles.
  - If algae have grown in the model, add about 200ml of CHlorox bleach to the toilet bowl, flush both models for about two hours, stop the pumps for a half day or so and repeat the procedure until all algae are gone.
- If tubes become loose try to reattach them, fix them with hoseclamps, or replace them if they are too worn out.

### Appendix

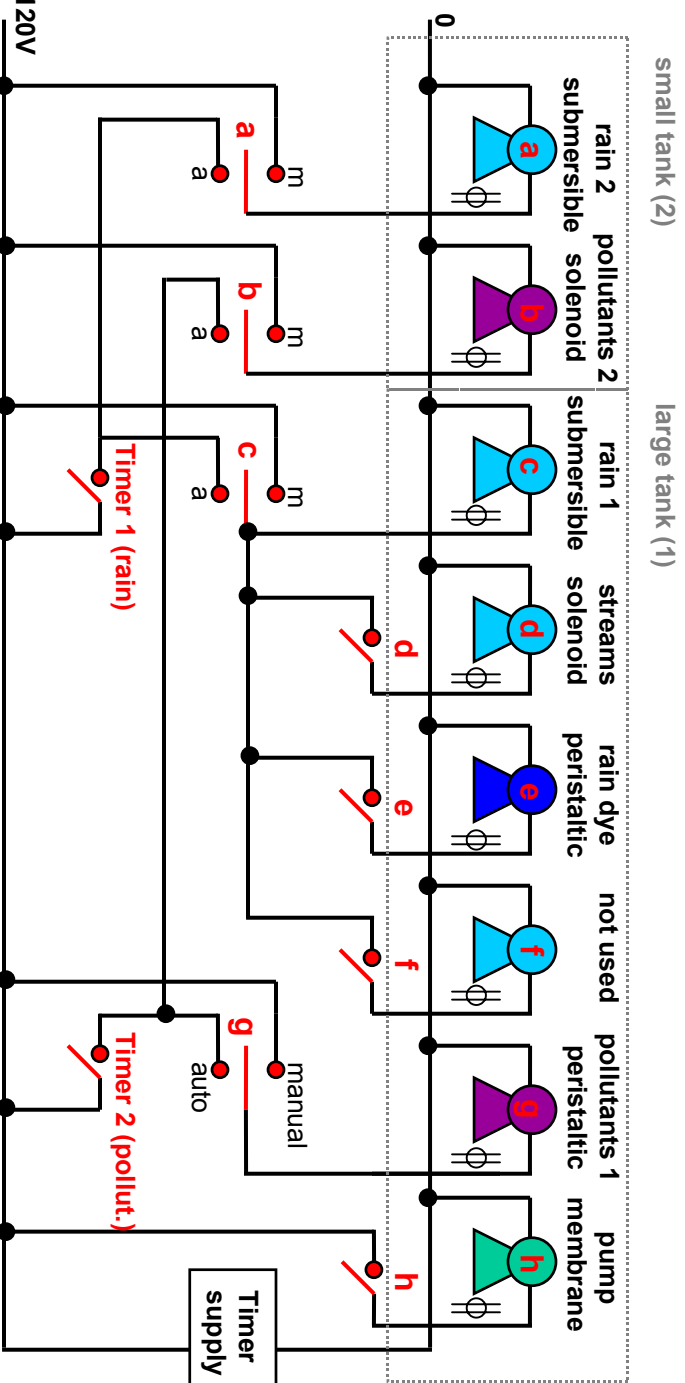
- This document and images as Adobe Acrobat pdf file
- [Tube routing diagram](#)
- [Electrical wiring diagram](#)

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# Tubes



# Wires



**Layout of switches and outlets (left, right)**

c	e	u	a
d	f	h	b

a	c
e	d

f	g
b	h