

## PARTS LIST

There are only four items needed for this device: 1) multi stream rotary sprinkler, 2) pressure regulated shrub adapter, 3) sprinkler spike, and 4) nipple to connect the riser to the spike (see figure 1)

### **1. Multi-stream rotary sprinkler**

Suggested:

Hunter MPR1000-210, Rain Bird R-VAN1318, or Toro PRN-A

There are several manufacturers of these type of multi-stream rotor (aka. rotary streams) sprinklers. They are desired over conventional fan spray heads because of the lower precipitation rates (PR), the amount of water applied per minute, delivered. Fan sprays can have PRs of 1.5 inches per hour. Only sandy soils, with the highest infiltration or intake rates of 1.5 in/hr can absorb that rate without runoff. Even sandy loam soils have intake rates of 1.0 in/hr. In comparison, silty loam soils adsorb water at only 0.25 in/hr and clay soils types absorb at 0.08 in/hr or less (see table 1). So fan sprays will create runoff when used to apply water on most soils. Multi-stream rotor sprinklers have PRs of only about 0.22 for the Hunter MPR1000, 0.325 for the Rainbird R-VAN 1318, and 0.31 for the Toro PRN-A. These PRs are still greater than some of the intake rates of a lot of soils, but they can be run for a longer period before runoff might appear.

### **2. Pressure regulated shrub adapter**

Suggested:

Hunter PROS-00-PRS30, Rain Bird PA-8S-PRS, or Toro 570S-PRX

A shrub adapter is necessary to provide a mount for the multi-stream rotors sprinklers. Be sure to use the item numbers provided for both the sprinklers and these adapters. Although these adapters have male threads, some adapters have female threads. So it is important to have matching ones on the adapter and sprinkler. These adapters also have pressure regulation built into them to reduce the source pressure down to 30 psi. Not paying attention to pressure is a leading cause of poor irrigation practice. Since the pressure is regulated, the PR rate of the sprinkler can be determined from the specification tables. Using the PR rate, the soil type, and the desired depth the soil is wetted, a run time can be calculated.

### **3. Nipple**

This PVC pipe part needs to be a ½” diameter and should be short, so 2” in length. Sometimes the part is described as “½ in. x 2 in. PVC nipple”. “Riser” may be used instead of “nipple”. You should be able to find it in the plumbing or irrigation parts section of the hardware store. This part allows the shrub adapter to be connected to the spike.

### **4. Sprinkler spike**

The sprinkler and adapter are mounted onto the spike so that it can be inserted into the soil and connected to a hose. A different kind of mount called a “sled” can be used also, but they are slightly more expensive. The only feature necessary for this part is that it has to accept a hose (it needs a “swivel hose” connector) and it has to have a ½” pipe fitting for the nipple.

## ASSEMBLY

Use Teflon pipe tape on both threaded ends of the nipple and thread it into the spike and the shrub

adapter. Tighten all of these pieces together. Lastly, mount the multi-stream rotor into the shrub adapter. Connect to a hose.

#### USE

Determine where to locate the sprinkler. It should be near, but not too close to the trunk of the tree being irrigated. How close depends on the diameter of the trunk. The area to be irrigated should be under the tree canopy, but can extend past the drip line up to a few feet. Turn on the water for a moment and, if needed, adjust the arc to cover 270° or 3/4 of a circle (see figure 2). You may have to adjust the radius if the tree canopy is much larger than the area irrigated.

Determine the soil type where the tree is located. This may be difficult to do. Consult your local UC Master Gardener program for assistance. There is an online application that can be used, but a lot of information will be returned and it can be intimidating to use since it is designed for Professional uses (<http://casoilresource.lawr.ucdavis.edu/gmap/>). Find the irrigation duration using Table 2.

Turn on the irrigation, and note the time. Set an alarm to remind you to turn the water off. If your runtime is among those that are in red, you'll need to check every hour or so to see if any run off has developed. If runoff is present, note how long the water has been on, then shut the sprinkler off for a while to allow the water to be absorbed into the soil. Then turn the water back on. You'll need to keep track of the total time the water has been applied so that you won't put on too much.

#### NOTES

- Since you are using multi-stream rotary sprinklers, you don't have to change the runtime if you change the arc or radius of the application pattern.
- You may not be able to exactly match up the irrigation pattern to the canopy. Try to get it as close as possible.
- The sprinkler pattern won't irrigate the entire area under the tree since it is only ¾ of a circle and there is a ¼ that is missed. The next time water is applied, place the sprinkler so that missed area gets watered.
- If the canopy is much larger than the sprinkler can cover, you may have to use a different sprinkler. If you are using a Hunter MPR 1000-210, change to either a Hunter MPR 2000-210. If you are using a Rain Bird R-VAN 1318, try the R-VAN 1742. There isn't another option for the Toro PRN-A.
- Water pressure is critical in obtaining desired results. The shrub adapter will regulate pressure down to 30 psi, but if your system can't provide that pressure, you won't get good results. If your system can't provide 30 psi, then it may be better to use the in-line drip method.