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Don Voss is an economist by training, and an active gardener with a scholarly interest in azaleas and rhododendrons. He is an expert on the azaleas of Robert Gartrell (Robin Hill hybrids), and is a former chairman of the Society's Board of Directors and former keeper of the Society's database. Don currently volunteers at the herbarium of the U.S. National Arboretum. □

THE RAISING OF A RAINBIRD

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Mary and I retired to a fully wooded 0.71 acre lot in the low country of the Carolinas in 1988. We had no professional background in horticulture, but to keep us busy we decided to start an in-ground azalea, rhododendron and camellia evaluation project. Soon afterward, the need for irrigation was realized, and a ground level pop-up sprinkler system was installed. Rainbird Models 2045A, 15103-07 and 1800 pop-up heads were used to obtain full coverage. After a few years and many plant varieties later, it became evident that the height of the plants was blocking much of the spray and diminishing the overall coverage. Additionally, those plants immediately adjacent to the pop-ups were getting pummeled and damaged by the direct spray. We wanted a cheap and quick solution, but one that would be aesthetically acceptable and basically inconspicuous.

We ordered catalogs and studied them. We investigated specialty stores. Nothing appealed to our critical eyes. The only viable alternatives we found were fixed or portable stanchions, designed primarily for commercial nursery use. Most of them were expensive, and none of them were inconspicuous, to say the least. By chance only, I attempted to fit one of the Model 2045A housings into a piece of 4" PVC pipe. With a little filing off of some support struts (later eliminated by the manufacturer as unnecessary), the housing fit very snugly. (Aha, you're thinking, how can an ugly 4" wide piece of bright white PVC sticking up in the sunlight be considered aesthetically acceptable? I'll get to that point later, and explain how we made it so.) Similarly, I found that the 1.5" Schedule 40 (thick wall) PVC would accept the smaller Model 1800 shrub pop-up housings.

Some major considerations were:

- (1) What would be the average cost to move each head?
- (2) Were there connectors and flexible pipe readily available?
- (3) How deep should the PVC stanchion be buried for stability?
- (4) What would be the height limit for raising a head?

Our solutions were:

- (1) Although cost of materials may be different in your area, following is a breakdown of our costs for parts per sprinkler:
 - (a) 4" inside diameter (ID) PVC per foot = \$1.35
 - (b) 1/2" ID black "funny" (flexible) pipe per foot = \$0.35
 - (c) PVC-to-funny pipe reducer connector, 1 ea. = \$0.95
 - (d) Threaded funny pipe connector, IBM 199-623, 2 ea. = \$ 0.99
 - (e) PVC glue, 1 can = \$1.49
 - (f) Paint spray can, each = \$3.49

Accepting the fact that my labor was free, the approximate average cost per unit = \$12.00. Cost per unit for raising Model 1800 shrub heads is slightly lower, since 1.5" PVC is considerably cheaper per foot than 4". Exact figures are difficult to quote due to two variables involved, i.e., PVC height and amount of paint used. For us, this cost was a cheap trade-off. The cost of one commercial portable stanchion we found to be anywhere from \$40 to \$120.

- (2) To stabilize a piece of PVC, with a sprinkler head attached, and buried in our sandy soil, I found that a simple formula to determine the buried length would apply in all cases here, i.e., $\frac{1}{3}$ the total length of the PVC should be buried in the ground. (If your soil is more dense, like clay, my formula may be too stringent). To figure the total length easily, just multiply the above ground height by 1.5 (see sketch). (I don't believe that the formula would apply when sinking telephone poles!!)
- (3) Black flexible pipe, 1/2" ID thick walled, called "Funny Pipe" is used to make the connection from the main water supply line to the sprinkler head, using the appropriate adapter connectors.
- (4) For ease of connecting, the PVC housing should be offset from the pipe line by at least one foot (see sketch).
- (5) Due to the difference in buried depths of the existing water line and the PVC, a slot must be cut on the bottom end of the PVC to accommodate the introduction of the funny pipe without it being pinched by the bottom edge of the PVC housing itself (see sketch).
- (6) Based on the size of the threaded fitting in the existing water line, the connector may have to be cut off and a connector with the correct threads glued on using PVC glue.
- (7) Attaching the funny pipe to the adapter connector takes a wee bit of push, but with determination, the funny pipe will eventually bottom-out. The adapter will easily connect to the existing water line by the use of a screw fitting (see sketch).

- (8) When using the 1.5" PVC with the Model 1800 shrub head, a slot must be cut 1.25" wide x 4.25" long on the top end of the PVC to accommodate the drain plug on the side. It is because of the necessity for the slot that the heavy walled (Schedule 40) PVC should be used. This will ensure that the structural integrity of the PVC material remains constant, and won't allow the pop-up to move. The drain plugs will remain accessible for obvious purposes in the future.
- (9) For applications in gardens in northern climes where the freezing of pipes, etc. is a threat, another consideration should be addressed. The drain plugs for all of the Model 15103 and 2045A heads will be hidden and inaccessible inside the pieces of 4" PVC. Therefore, a drain plug should be added to the lowest end of each sprinkler zone pipe to overcome this shortcoming.

PREPARATION & APPLICATION:

- (1) Using a narrow-bladed shovel, carefully dig around any Rainbird sprinkler head of the types previously mentioned until the plastic water supply pipe is exposed. Determine the direction the line has taken, and uncover enough of the pipe to be able to cut it at a point about a foot to 18" from the sprinkler head. (Protect the exposed cut end from getting contaminated with soil).
- (2) Deburr the cut end of the pipe with a knife or file. Have an associate turn on the water in that zone for an instant while you hold the open end of the pipe. This step will clear the water line of shavings. (WARNING: Do not get in front of the open pipe while this task is being performed.)

Wipe and dry the end of the pipe. Attach a funny pipe adapter connector to the pipe using PVC glue, as per the instructions given on the glue can label. (Continue to protect the newly installed connector from getting contaminated with soil. Personally, I wrap the end with a clean rag).

- (3) Remove the original PVC pipe and connector from the detached Rainbird head and housing. Thread a funny pipe adapter connector into the base of the housing and carefully tighten with a wrench. (WARNING: The material is only plastic, so excessive tightening can break the fitting.) Attach a piece of funny pipe, of a predetermined length to the new housing connector.
- (4) Having previously determined the above-ground height you want to raise a sprinkler head, multiply the height by 1.5 and cut a piece of 4" PVC to that length. Using a circular power saw, cut a slot of 1.25" x 6" up one side on the bottom end of the 4" PVC. Break and remove the 1.25" tab with a pair of pliers. The finished product is shown in the sketch.
- (5) Insert the reworked Rainbird housing and funny pipe into the 4" ID PVC from the top end (end without the newly cut slot). (NOTE: If there are struts just below the top edge all around the housing, care must be taken to grind or file them off. The housing will not seat properly in the PVC until that task is accomplished.) String the funny pipe out through the bottom slot, and cut it to length using a knife. Insert that end of the funny pipe on the supply pipe connector using brute force until it is seated. Install this finished assembly in the predetermined

location in the hole, with the sprinkler end up. (Similar to laying sod, "green side up"!).

(6) Carefully cover the entirety of the excavation with dirt and tamp with the end of a sledge hammer until the area around the PVC housing is firm. Note the slope of the land at that point. The PVC housing should be positioned perpendicular to the slope of the land for best 360-degree sprinkler coverage.

(7) Here is where the aesthetics come into play. Carefully note the three/four main background colors in your garden. (Ours happens to be mostly greens, because of the ever-green shrubbery, and browns because of the pine straw mulch we use. Here and there is a hint of black also, because of some tree bark coloring.) At your local hardware store, select spray cans of flat or enamel paint (does not matter which) with colors that fit your locale. After that, it is only a matter of becoming an artist and painting the PVC extensions in a camouflage manner of your own liking. The finished touch can be changed continually, until the right combination is reached.

(8) As pertains to the Model 1800 shrubbery housings, nothing is different, except for the size of the PVC, and the additional slot requirement for the protruding drain plug.

(9) Virtually, there are no practical limits to how high a sprinkler head can be raised above ground using this method. The lack of adequate water pressure could be a constraint, possibly. To expedite the ease of lawn mowing, I found space in our gardening areas in

which to move those sprinkler heads that had been at ground level in the lawn areas, previously. I did not care to have to mow or weed-whack around them in the future.

A final note: Early on in this project, I miscalculated the required raised heights a few times. Consequently, very soon I will have to return to two or three heads and raise them even higher than they are now. This ordeal will be an ongoing necessity in the future,

when the more upright plants get out of hand again.

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