

## DIY RESIDENTIAL IRRIGATION IMPROVEMENTS & REPAIR

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*Jacksonville*  
Where Florida Begins.

## CONSERVING WATER IS EVERY ONES JOB!!

**Florida-Friendly**  
Landscaping™ PROGRAM



## IRRIGATION USE IN FLORIDA

Florida's population currently +/- 19,893,000

95% of Florida's potable water supply comes from groundwater

Florida has the highest domestic water use in U.S. despite 52" of rain per year average

Studies have shown that residential lawn and landscape irrigation can account for more than 50% of a home's total water use

## DIY IRRIGATION REPAIRS

During this presentation we will discuss:

Repairing/replacing spray heads

Repairing/replacing turf rotor

Install a rain shutoff device

Places to locate needed parts and additional information

## OBJECTIVE OF AN IRRIGATION SYSTEM

Maintain a healthy, beautiful landscape

Provide efficient water use



Have minimal impact on the environment

## UNDERSTAND HOW THE SYSTEM WORKS



Water from a source goes to, Back flow preventer then supply lines.

Irrigation valves, one for each zone connected to the timer by buried wires

When timer comes on it sends low voltage current to valve which opens and allows water to enter that zone to sprinklers

### HAVE AN IRRIGATION SITE PLAN?

What your plan should show!!

- Meter, well or water source
- Cutoff valve
- Backflow preventer
- Timer/Controller
- Main supply lines
- Valves
- Location of turf heads



### CHECK YOUR IRRIGATION SYSTEM MONTHLY

- Run the system
- Are all the zones working?
- Do all the heads popup fully?
- Is water running from around the heads?
- Are you watering the street or driveway?
- Is the timer set correctly?



### DO IT YOURSELF REPAIR TOOLS



Paper Towels or Rags



Hand spade



Adjustment tool or thin blade screwdriver



Lockout tool



Bucket

### TIME TESTED TIPS FOR DIY IRRIGATION REPAIRS

- Dirt is the number one cause for system failure and is the number one cause of repair failures.
- Muddy water must also be removed to prevent clogging



Turf rotor typical installation

### DIY IRRIGATION REPAIRS CONT

- First attempt adjustment
- Requires small hole around head.
- Second attempt is to replace inside parts or entire head
- Requires bigger hole around the head.

### SPRAY NOZZLES ARE NOT ALL THE SAME

- Toro uses male threads



Female Spray Nozzle Body

- Rain-bird, K-rain, Hunter, Orbit all use female threads



Male Spray Nozzle Body

### SPRAY NOZZLES CAN BE FOUND.....

PVC Riser



Pop up sprayer



**The spray nozzles are the same on both**

### ADJUST OR REPLACE?



Probably replacement



Possible adjustment



DIY or call plumber?

### SIMPLE POPUP PROBLEMS



Debris keeps popup riser from retracting back into the body....



Someone trips on riser breaking it off now have slip and fall liability ....

### SPRAY HEADS ON RISER



Body



Adjustable



Fixed



TORO NOZZLES SHRUB ADAPTERS



TORO NOZZLES ADJUSTABLE PATTERN



TORO NOZZLES FIXED PATTERN

### CLEANING SPRAY HEADS...FIXED

Distance of spray is determined by manufacturer and labeled on top of nozzle in feet

Dirt is #1 reason for failure

Clean or replace drop in filter

Install nozzle for coverage pattern you need



Toro Brand



Rain-Bird Brand

### INSTALL FIXED SPRAY NOZZELS



Nozzle



Screen



Body



Threaded riser



8 feet



10 feet

**THIS PATTERN IS HALF CIRCLE**

H= Half Circle  
Q= Quarter Circle  
F= Full Circle

T= third circle  
TT=three third circle

### CLEAN SPRAY HEADS...ADJUSTABLE

Distance Is printed on top and color coded

- Remove, clean or replace the drop in filter
- Distance should be matched to original or what size is needed if replacing



### POP UP SPRAYS



Come in various heights, 2 to 12 inches

Spray patterns from 6 to 15 feet

Limited ability to interchange brands

Uses the same nozzles as fixed riser without body attachment, which is part of the pop up

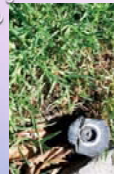
Can be repaired easily by unscrewing cap removing and replacing the inside parts

### POP UP SPRAY PARTS



Photo from <http://www.irrigationtutorials.com/>

### POP UP REPAIRS OR REPLACEMENT



Start by removing sod and soil away from broken sprinkler.

Next unscrew the top cap and remove inside parts. Inspect threads on body and if possible reuse it. Replace riser, spring, seal and cap with new parts. **\*\* Nozzle must be installed before replacing riser and cap\*\***

If body is damaged cover opening and remove soil to expose bottom of body. Inspect male fitting from supply line and clean if needed. Screw on new replacement sprinkler head after installing new nozzle. Adjust riser for coverage or index to left hand end for adjustable nozzles.

### INSTALLING AN ADJUSTABLE SPRAY NOZZLE



Rain Bird High Efficiency VAN 12 foot adjustable



12 foot adjustable nozzle

### ADJUSTABLE SPRAY INSTALL



Insert a clean screen into top of the riser then screw on desired VAN nozzle only finger tight.

Visually locate the small "L" on the top of the nozzle, then rotate the body and or riser until the "L" is aligned with the left hand edge of the desired spray area.

You must hold in place the bottom ring on the nozzle, which is attached to the riser, as you rotate the top ring to the right. Stop at the approximate right hand edge of the desired pattern a visual inspection will show you the opening on the nozzle. Start the system and make final adjustments.



### ADVANCED SPRAY NOZZLES

• Common spray nozzle types

- SAM.....In stem check valve saves water and helps prevent leaking and contamination
- PRS..... Pressure regulator built-in saves water and improves efficiency
- SQ..... Throws a square pattern at 2.5 or 4 feet and come in full, half or quarter
- Rotary nozzles....Extend 24 ft. At 45PSI and reduce water usage by 2/3 the low flow rates also are better for slopes

### NOZZLES CONTINUED

- U Nozzles.... Have a second water stream closer to the head for better coverage and reduces water consumption by way of shorter run times
- MPR... Matched precipitation nozzles allow different patterns on the same zone and reduce wasted water
- VAN...Variable arch nozzles can be used for almost any area with better coverage and reduced waste

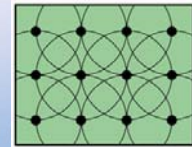
### TURF ROTORS



### MAKE SURE YOU HAVE CORRECT TURF ROTOR HEAD COVERAGE.



- Turf heads must be head to head coverage
- That means the head will reach the other heads and not just the wet areas.

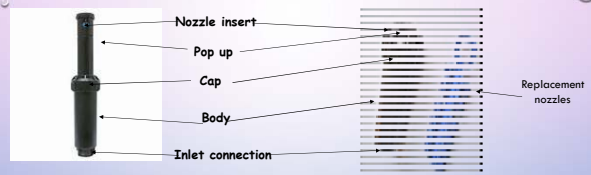


### TURF ROTORS



- ❖ Must be exact match to original in Gallons Per Minute and coverage area
- ❖ If body is in tact and not damaged consider replacing only the interior parts
- ❖ Important to keep dirt and debris out of the body while changing
- ❖ Most are 3/4 inch female inlet fittings and on the bottom

### ROTOR INTERNAL PARTS SWAP



If the body and inlet connection are not leaking its possible to remove the cap and the internal parts and replace with new ones, must be same as those removed exactly.

## YOU MUST KEEP THE DIRT OUT



Nice wide hole but could be deeper



Turning directions on and off  
Teflon tape helps seal new head

## REMOVE INTERNAL PARTS

- **Replacement parts must be exact match**
- Using the palm of your hand rotate the nozzle and top to the left stop, remember where this point is. Mark it if necessary.
- While holding the body firmly in one hand remove the cap, along with internal parts, with the other hand counter-clockwise.
- Remove the entire assembly, no spring here so it wont pop up,

## REPLACE INTERNAL PARTS

- Use palm to rotate top on replacement assembly to left stop and insert into body with left stop at the same point you removed the original from use mark made if needed
- Tighten the cap clockwise
- Turn on zone and check for leaks
- Make final adjustment to right stop and spray distance
- Observe head for several cycles to ensure coverage

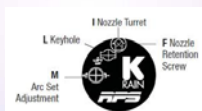
## ADJUSTING TURF ROTORS

- No two brands of sprinkler heads are adjusted in the same way
- Save the instruction pamphlet that comes with the new rotor
- Many rotors require a specific tool or key to adjust
- Remember left hand edge is set first
- Right hand edge is set next
- Spray distance is last to be set

## TURF ROTOR ADJUSTMENTS



Everyone is different.....



## TURF ROTOR ADJUSTMENTS WHERE TO FIND MORE INFORMATION

- Printed material that comes with rotor
- Product brands web site
- You-tube videos
- Internet search using product name and description



You-Tube Video

### INSTALL A RAIN SHUTOFF DEVICE



- ❖ Prevent irrigation system from watering when sufficient water is supplied by rainfall.
- ❖ Increase system efficiency and **conserve water by ~8%**.
- ❖ Set at  $\frac{1}{4}$ " to  $\frac{1}{2}$ "
- ❖ Make sure it works & is properly installed...not under plant or ledge

### RAIN SHUTOFF DEVICES



Hard wired type



Rain-Click (wireless)



RB Rain check

### INSTALL A RAIN SHUTOFF DEVICE

- Choose outside location
- Attach sensor to structure or mount to PVC pipe in landscape
- Route attached wires to timer/controller



**Unplug timer before attaching the sensor**

### INSTALL A RAIN SHUTOFF DEVICE CONT.

**Unplug timer before attaching the sensor**

- Secure shutoff wires to wall near timer
- Locate sensor terminals on timer and remove jumper wire
- Attach sensor wires to terminals and tighten

Sensor terminal with jumper attached



### INSTALL A RAIN SHUTOFF DEVICE CONT.



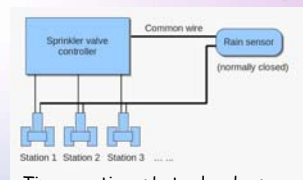
What wrong with this hookup?

RED wires = power source  
 GREEN wire= ground source  
 YELLOW wire= jumper  
 White= from rain shut off device

Yellow jumper must be removed

### ALTERNATIVE HOOK FOR RAIN SENSOR

- For older timers without sensor terminals or
- When sensor is mounted closer to valves and timer is far away
- Sensor is wired to interrupt common valve wire when activated



Timer continues but valve does not operate

## SUPPLIERS

### On-line suppliers:

Many have downloadable instructions  
Some have how-to videos

### LOCAL SUPPLIERS:



**EWING**



**RAIN-BIRD**

**Blue Stone**

**K RAIN**

**Sprinkler Warehouse**  
Irrigation Supplies • Outdoor Lighting • Lawn & Garden

## IRRIGATION PRODUCTS WEB SITES

### PRODUCTS MANUFACTURERS

- [WWW.Hunterindustries.Com](http://WWW.Hunterindustries.Com)
- [WWW.Rainbird.COM](http://WWW.Rainbird.COM)
- [WWW.Senninger.Com](http://WWW.Senninger.Com)
- [WWW.K-rain.Com](http://WWW.K-rain.Com)
- [WWW.Toro.Com](http://WWW.Toro.Com)
- [WWW.Orbitonline.Com](http://WWW.Orbitonline.Com)

## USEFUL WEB SITES

- [Http://ifas.Ufl.Edu](http://ifas.Ufl.Edu)
- [Http://edis.Ifes.Ufl.Edu](http://edis.Ifes.Ufl.Edu)
- [Http://solutionsforyourlife.Org](http://solutionsforyourlife.Org)
- [Http://abe.Ufl.Edu/mdukes/](http://abe.Ufl.Edu/mdukes/)
- [Http://duval.Ifes.Ufl.Edu/](http://duval.Ifes.Ufl.Edu/)

## ADDITIONAL INFORMATION

For information on this or other programs offered or answers about specific garden or landscape questions:

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