

POWER ENTERPRISES INC. LANDSCAPING & IRRIGATION

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Warranty

Power Enterprises warranties all sprinkler installations for one year to be free of defects in materials or workmanship under normal use from the original date of installation. This warranty does not extend to homeowner repair or improper adjustments to the sprinkler system or results from misuse, negligence, alteration, and modification. This warranty extends only to Power Enterprises installations. Failure to winterize your sprinkler system will void this warranty.

All plants, trees and shrubs are warranted for 90 days. Lack of subdivision water, clock being shut off, abuse, acts of animals or acts of God are not included. No other warranties are expressed or implied.

Important Information

Your house's sprinkler system <u>will require your attention</u> <u>and maintenance</u>! Included in the back of this manual is a troubleshooting page that will help you solve some of the most common problems you may encounter with your system. Many of these common problems are maintenance related and will <u>not</u> be covered by your warranty.

1. Sprinkler 101

First thing to check when moving in

Check your sprinkler timer and readjust the times down as they are generally set high upon initial installation. If you have a question please call Power Enterprises to set up a service appointment.

How often do I adjust the timing?

Consider adjusting the sprinkler timer as many times as you adjust the thermostat in your house—i.e., if it's hot enough to turn on your air conditioning, consider turning up your watering times; if you turn on your heat, consider turning down your watering times.

How long should I water?

Watch the soil; it will tell you when you need to water again. Some soils drain well, while others hold water. After your first watering, watch the soil and don't water again until the soil is nearly dry. Then water until it runs off, and repeat this process. You may see plant wilt due to planting stress; this is normal—new growth will soon take over.

Adjustments

After the initial installation and adjustment of sprinkler coverage, it is the homeowner's responsibility to keep the sprinkler system adjusted.

Leaks (fact or fiction)

Fact: You will know you have a leak because the pressure will wash out the affected area and expose the leak, or you will hear and see the pressurized water releasing from the affected area. **Fiction:** Visible or standing water does not always indicate a leak. The filter and valve boxes create a low area in which any excessive water will collect. This is common; it will not affect the life of the valves—they are designed for this.

Lack of water pressure

- 1. If you have no water pressure, check the filter, located in the green box with the red-handled shut-off valve, to see if it needs cleaning.
- 2. Check the filters in the pop-ups by unscrewing them from the head in the popped-up position when the water is off.
- 3. Check for any leaks or damage to sprinkler heads that may be causing excessive water loss.
- 4. Check to make sure your subdivision's pressurized irrigation has not been temporarily shut down, causing lack of pressure or no water at all.

Lack of pressure will result in dry areas. Water by hand/hose until the system is repaired to prevent plant damage. Service charges may apply if sod or plants need to be replaced due to a subdivision or homeowner watering issue.

Illustrations

Illustration 1. Backflow Assembly*



A. Valve shown in open position B. Valve shown in closed position

The two valve handles on the backflow allow you to stop the water flow from that connection. Both handles turned in-line allows the flow of water, but if one is turned counterclockwise it will stop the flow of water at that point. This is important if water needs to be shut down immediately. If your sprinkler system has connections to both city water and pressurized irrigation, make sure one of the connections is off while the other is on, to prevent a high water bill. *Note: Not all systems have backflow assemblies.

Illustration 2. Valves

These two valves can be found in a 4" or 8" pipe with lids next to the water meter or close to the backflow assembly shown in Illustration 2

Typical Pressurized Irrigation Connection





A. Drain Valve B. Main Valve



Illustration 3. Shutoff valve and filter

To service the filter, turn off the manual valve. It is important to release the pressure on the sprinkler system by either using manual valve operation at the controller or by using the bleed screw from the valve. (See Illustration 4 on next page.) Unscrew the collar from the filter assembly, then wiggle the filter away from the filter casing. Clean with hose or wire brush and reinstall. *Note:* tighten collar on filter by hand only. Turn water on and check for leaks.

- A. Winterization tee
- B. Collar
- C. Filter

D. Manual valve. Turn a quarter turn in either direction to open.

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A. The bleed screw operates the valve manually. Turn screw only 1 turn counterclockwise to operate.

B. Filter for Netafim pipe used in shrub zone and planter beds. Unscrew and clean as required.

Sprinkler Heads

Hunter brand sprinkler head instructions are furnished with this packet. They are larger than the pop-ups and spray a single stream of water rotating slowly from left to right.



Illustration 5. Pop-up sprinkler head close-up

The pop-ups installed are Irritrol or Rainbird brand, shown here with the filter and nozzle unscrewed from the shaft of the head. To adjust, turn the flathead screw on the top of the nozzle clockwise to close off all water coming from the nozzle. Turn it counterclockwise to open the nozzle for full spray. If the half spray is out of alignment, rotate the shaft in the direction needed. If there is no water spraying from the head or the spray pattern is irregular, clean nozzle and filter.

Netafim pipe or drip lines

The drip line installed for your sprinkler system is called "Netafim." It is called in-line drip tubing because it has manufactured emitters in the drip line every 12 inches and emits .9 gallons per hour. Even though this watering technique seems to emit less water than the conventional spray heads, it waters directly to the root zone of the plants. There is less water loss through evaporation and runoff. Thus timing is going to be an issue.

The best way to understand how your soil handles the water is to clear away a bare area in your beds with your drip line exposed. Turn on that zone for 10-15 minutes to see how far the water spreads and how it saturates into the soil. From there you can determine if your beds need more or less watering time. The drip line installed is coverage only for the plants initially installed. If you choose to plant further in those areas you may need to add more drip line to the zone. If you add more time to the existing zone you may risk drowning the existing plants. Adding more drip line to your system is affordable and easy to do and should be considered if you are adding supplementary plants.

Power supply to the timer

All garage electrical outlets are run from a single GFI outlet that has the ability to stop power to all outlets in case of a power surge. To identify this outlet, look for the plug that has "test" and "reset" buttons located on the outlet itself. This is important to identify in case you have a power outage or your sprinkler system isn't working. The GFI acts as a circuit breaker: when it pops out the power disconnects. To reset it, press the reset button until it clicks back on.

If your sprinkler system is not running, this is the first thing to check. Your timer may display numbers or show that it is working even when the GFI has been tripped. This is due to the battery backup, which has enough power to hold the programmed memory, but not enough to run the zones. To ensure that the battery backup is always reliable, change the battery every spring. Consult the manual for the location of the battery and the procedure for replacement. If the reset button does not reset the power, but clicks back off again, there is an electrical problem, and you should consult an electrician. To check whether the GFI is working, press the test button; it should pop out and turn off. Then press the reset button, and it should reset.

Note: Some clocks are run from a separate circuit and are independent of a GFI.

Remember: The battery in the clock will keep the display working even if the GFI has popped, but the sprinklers will not run. If your system isn't working, check your water supply, electrical system, and lastly for leaks.

Irrigation Valve Wiring

Here are the basics of valve wiring. There is no maintenance required. The most common problems we find are animals or rodents chewing on the wiring and wires being pulled apart. If only one zone is not operating in your system, it could be the wiring or a wire connection. A separate color coded wire is connected to one of the leads on each of the valve solenoids. Note: It does not matter which wire lead is chosen for color or common white wire on the solenoid. The wires are connected using waterproof grease caps. Waterproof grease caps are filled with silicone which will seal the wires from moisture. The other lead from each valve is attached to the common white wire. Once again use the grease caps to make the connection.



Wiring Summary: Use a grease cap for each connection. The common wire will connect from the controller to one lead from each of the valve solenoids. A spate color wire will connect from the controller to each of the remaining leads on the solenoid on each valve. Remember it does no matter which of the two wires from the solenoid is chosen for color or the white common wire. However, remain consistent and use the same side (on each valve) for color wire and the opposite side for the white common wire.

Start-up and Winterization

Winterization

Power Enterprises does not offer winterization, but there are several contractors who offer this service.

Start-up

See illustration of water service connections and manual valve operation on the controller instructions.

- 1. Plug in the timer and install a new 9-volt battery yearly.
- 2. See illustration of typical city water or pressurized irrigation connection to turn water on or off.
- 3. Check the sprinkler system with the clock using manual valve operation. This will ensure that the valves, wiring, and controller are in good working condition.
- 4. Check for leaks or adjustments.
- 5. Adjust the schedule on the sprinkler timer.

2. Plant & Lawn Care

Watering evergreens and conifers

Hand water trees and shrubs deeply until they are established. Also, water during the off season of irrigation to prevent dehydration.

Congratulations on your newly seeded lawn!

Keep the seed wet for 10 days by watering 2-3 times per day. Example: small area "pop ups" 3-5 minutes each time Large area "rotors" 8-12 minutes each time Do not saturate or allow puddling to occur

You want to establish moisture in the ground and then water enough to maintain it After 10 days, reduce the watering to once per day allowing the soil to dry between watering. Double (or so) the number of minutes at each station.

Your new lawn will not be ready for mowing and serious traffic for at least 1 month. Start mowing when ready. It would be a good idea to mow very short the first couple of times to help stimulate growth and to chop weeds off.

The seeding included a starter fertilizer, but it's time to fertilize again and spot spray the weeds once you have reached 1 month or so and/or a couple of mowing.

Watering sod

Keep newly sodded lawn constantly wet, but not in standing water or with water runoff, until the sod roots. If you cannot pick up the sod it has rooted. Once it is rooted, set up a watering schedule to fit the season and/or weather. Refrain from any traffic on newly sodded areas as it could ruin the grade and produce indentations, divots, or raised areas.

Lawns should be watered only as needed. We recommend 1" per week, watering every second or third day. A tuna can set out from the sprinkler head will help you determine how long to water to reach 1". Watering less frequently and for a longer period of time will encourage a deep root system.

Do not let your grass die due to lack of water because of sprinkler problems! Water by hand/hose until a service technician can assist you.

If an area in your grass looks like it is drying out, but it is getting watered well, consult a lawn care professional to diagnose and treat the problem, as it may be a fungus or pest such as billbugs.

If you are unsure whether it is getting enough water, after going through a watering cycle, physically check the soil under the sod to see/feel the moisture level.

If the green color in your lawn is not consistent or if one area of the sod looks different, start a fertilizing schedule to even the color. Sod can come from fields with different fertilizing schedules, so some pieces may come up green and lush faster than others. Regular fertilization is the "icing on the cake" for a beautiful lawn!

Wasteful irrigation

The owner is responsible for eliminating wasted irrigation water. Do not run your system in rainy weather.

Over watering

Plants may experience stress during their first growing season. This is common. The roots are adapting to unpotted soil. During the first frosts of the season (usually in November), some plants will lose their leaves and become dormant. Be careful not to over water your plants—too much water will drown them! If the soil is still wet to the touch and you water again, the plants will not be able to use the extra water. The extra water will deplete the oxygen and nutrient levels in the soil and cause root rot, drowning, and various other problems that will kill your plants. Water penetration should be restricted to the plant root zone only. Make sure all of your shrubs are getting adequate water, but do not water every day. Plant roots need a chance to dry slightly to promote root growth.

It is easier to add water than it is to take it away. Plant wilt due to over watering is a sign the plant is sick. Signs of over watering include die-back from the top down, yellowing, curling of leaves, and the appearance of mold. Once a plant has started drowning it is generally too late to save it. If a plant dies due to over watering, it may be replaced at the homeowner's expense.

REMEMBER: The number 1 killer of plants in a new landscape is over watering!

3. Helpful Hints for Landscaping and Irrigation

Stakes supporting your trees

Please remove the tree stakes and green tie tape after one growing season to let the tree stabilize itself. Not all trees are staked—some trees do not require it.

Over watering and soil erosion can cause a tree to settle differently than it was planted. This is the homeowner's responsibility.

Re-stake trees if you see the prevailing winds have changed their course.

Weeds

Underneath your sodded lawn there are weed seeds just waiting to germinate! If you allow the lawn to become stressed due to over watering or under watering, the weeds will take advantage of the weak areas and germinate through the affected areas. Then you will need to manually remove or spray the weeds to keep them at bay while you strengthen the sod. The healthier the lawn, the less likely weeds will invade.

General settling/erosion

Your landscape will settle and change over time once watering and traffic occur. You will notice general deviations in the soil, but these irregularities will be less noticeable if the lawn and landscape are well-maintained and appropriate watering practices are followed. Once grades pass inspection it is the homeowner's responsibility to maintain them, and service charges may apply if alterations are made to the grade. The longer you wait to seed or sod your pre-graded lot, the more erosion will occur, due to weathering and/or weeds, creating an uneven, rocky grade to work with.

Seasonal Tips

Spring

- Check to see when pressurized irrigation will be available through the Subdivision association or the city.
- ✤ Turn on the irrigation system at the source.
- If you are connected to pressurized irrigation, make sure the filter is cleaned and screwed on tight by hand so it doesn't leak. Do not use a wrench.
- Run through each sprinkler zone to check for leaks to be repaired or sprinkler heads that need adjusting.
- ✤ Adjust the sprinkler timer to accommodate for cool, wet weather.
- Replace the 12-volt battery in the sprinkler timer.
- Spray deciduous trees with dormant oil before trees leaf out. This will prevent aphids, scale, and mites from hatching.
- Do pruning now before trees start leafing out. Prune any crossing branches.
- Fertilize trees and plants now. We recommend Agriform tablets. This promotes growth in spring and summer.
- Apply Dachtol or Sacron to your beds now to prevent broadleaf weed growth.
- ✤ Water trees and shrubs as needed.
- After danger of hard frost has passed, rake mulch away from plants. Also, prune back roses to remove deadwood.
- Fertilize lawn in April with Greenfields fertilizer to improve growth and color.
- Seed your lawn if needed when the soil warms up, generally in April.
- Spray Aspens with multipurpose fungicide containing Daconil to prevent black-leaf mold fungus. Spray as soon as leaves appear in spring.
- Prune spent blossoms from Rhododendrons and Azaleas, then fertilize.

Summer

- Check sprinkler coverage weekly and watch for dry areas or wilted leaves. Irrigation water can clog nozzles quickly and filters will need to be cleaned to ensure coverage.
- Adjust your irrigation timer to adapt to weather changes, being careful not to waste water. Trees planted in grass zones can die due to drowning and rot when the grass is over watered!
- Monitor irrigation needed by inspecting moisture content with your hands under the mulch or fabric.
- Mow grass to a height of 2-3" in the heat of summer. This prevents moisture loss and burning or yellowing of grass.
- Spray your evergreens with Kelthane in early June to prevent spider mite damage. Repeat dosage in 10 days. Be sure to spray early in the morning to prevent chemical burns.

- If you notice yellowing in the lawn, apply a fertilizer high in iron.
 We recommend Milorganite, an organic fertilizer that will not burn your lawn with the summer heat. Always remember to water after applying any fertilizer.
- Treat lawns with an insecticide such as diazinon or malthion to prevent billbugs.

Fall

- Find out when pressurized irrigation will be shut down and schedule your system to be blown out for the winter.
- We recommend fall seeding for lawns, beginning around August 15 through September 30. This is the best time to seed.
- Deeply water evergreen and deciduous plants before the ground freezes.
- Mulch with leaves around roses and other bushes to preserve moisture and supply nutrients to the plants through the winter.
- Fertilize the lawn in late September or early October with Greenfields fertilizer to promote strong root growth and thicken up the grass.
- Prune deciduous trees now, thinning branches and eliminating crossing branches.
- ◆ Cut back perennials to 4-5" and mulch with leaves.
- ✤ Mow grass no taller than 2" for the winter. Clean mower blades.
- Spray broadleaf evergreens, Rhododendrons, Boxwood, Azaleas, and Holly with Wilt-pruf to prevent winter dehydration.
- Rake leaves to prevent mold on the grass and any fungus on leaves from spreading.
- Blow out sprinkler lines to prevent lines from cracking in the winter.
- ✤ Wrap tree trunks to prevent winter sun scald.

Malfunctions aren't common, but when they occur, they're often due to one of these causes. Refer to each product's specific operating manual for additional information.

TIMERS			VALVES		
Problem	Cause	Solution	Problem	Cause	Solution
Watering Cycle Repeats	Multiple start times set	*Check program and turn off all but one start time- See Manual	No water at sprinkler heads	Main water supply valve is off	*Turn supply valve on Page 2
	Season adjust is set at more than 100%	*Reset Season Adjust		Faulty valve solenoid	Replace solenoid
Fuses blow regularly	Faulty valve solenoid	Replace solenoid		Zone valve wires not connected	Connect wires
	Damaged or shorted wiring	Inspect and repair wire		Debris in valve, solenoid or metering orifice	*Disassemble valve and clean with fresh water
	Faulty timer	Replace timer			
LED display is blank	No power to timer	*check outlet for power- Page 4	One or more zones won't stop watering	Faulty valve diaphragm	Replace diaphragm
	Faulty transformer	Replace transformer		Faulty valve	Replace valve
	Blown fuse	*See Sprinkler manual for fuses		Damaged or cracked valve body	Replace valve
Lawn is not watered	Timer is off	*Turn timer on		Damaged or cracked bonnet	Replace valve
	Blown fuse	*See manual for fuses	External water leaks at valve	Damaged or cracked pipe and fittings	Check and replace as needed
	Damaged timer/valve wiring	Replace wiring, timer		Damaged Diaphragm	Replace diaphragm
	Faulty transformer, timer or rain sensor device	Replace timer, sensor or transformer	Water leaks from the lowest sprinkler in the zone	Debris between diaphragm and diaphragm seat	*clear debris from valve
	Program incorrect	*Check timer program		Damaged Diaphragm	Replace diaphragm
	Main water supply valve is off	*Turn supply valve on- Page 2		Debris in solenoid	Clean solenoid
One zone does not function	Damaged wiring at timer or one manifold	*Repair wiring- Page 3a		Faulty solenoid	Replace solenoid
No water to one or all zones	Damaged wiring at timer and zone	*Repair wiring- Page 3a		Valve manual bleed open	*Tighten by hand- Page 3

*These items will not be covered under your warranty and are considered homeowner maintenance, so make sure you check before you call!

More Troubleshooting on next page

TROUBLESHOOTING

ALL SPRINKLERS

Problem	Cause	Solution	
Sprinklers will not pop up	Main water supply valve is off	*Turn supply valve on- Page 2	
	Not enough water pressure to run the zone	*Check for clogged filter and check for full pressure in irrigation system- Page 2	
	Debris between sprinkler riser and riser seal	*Clear debris- Page 3	
Sprinklers "stick	Damaged riser or riser seal	Replace sprinkler	
up alter watering	Damaged retraction spring	Replace sprinkler	
	Radius adjustment screw turned off	*Open counterclockwise-	
	Debris in nozzle	*Remove debris- Page 3	
Water doesn't spray from nozzle	Internal filter clogged	*Clean screen- Page 3	
	Main water supply valve is off	*Turn supply valve on- Page 2	
Water flooding from	Missing nozzle	Install nozzle	
sprinkler	Faulty or missing sprinkler head	Replace sprinkler	X
Sprinkler does not rotate	Not enough water pressure to rotate sprinkler	*Check for clogged main filter and check for full pressure in- irrigation system- Page 2	
	Debris in sprinkler head	*Clean debris from sprinkler- Page 1	
	Faulty sprinkler head	Replace sprinkler	*The
Sprinkler rotates in one direction and stops	Not enough water pressure to rotate sprinkler	*Check for clogged main filter and check for full pressure in irrigation system- Page 2	cons
	Faulty sprinkler head	Replace sprinkler	
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