

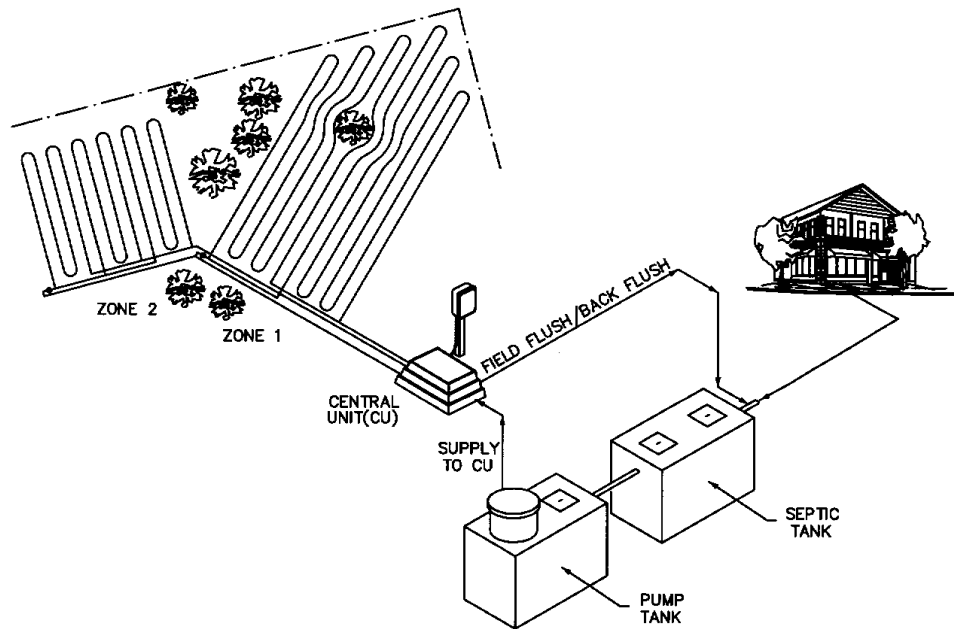
Owner's Manual

AMERICAN "PERC-RITE"®

WASTEWATER DRIP SYSTEMS

2 ZONE or 4 ZONE
SIMPLEX or DUPLEX

PATENT #'s: 5,200,065 ; 5,984,574B ; 6,261,452B1



OWNER'S NAME

HEALTH DEPT. ID NO.

LOCATION

NAME _____
STREET NAME _____
CITY, STATE ZIP _____

Table of Contents

American Manufacturing Limited Warranty	2
Introduction	2
Safety Precautions and Warnings	2
Owner's Responsibility	3
Overview of American Perc-Rite® Drip	3
System Parameters of American Septic Drip	5
Data Registers & Component Specifications & Details	6
Startup Log	8

MANUFACTURED BY:
AMERICAN MANUFACTURING COMPANY INC.
5517 WELLINGTON ROAD, GAINESVILLE, VA. 20155
1-800-345-3132

AMERICAN MANUFACTURING LIMITED WARRANTY

For one year (12 months) after the date of purchase, American Manufacturing Company, Inc. will repair or replace any product or portion thereof which proves to be defective due to materials or workmanship of American Manufacturing. We reserve the right to repair or replace defective materials at our discretion. This warranty does not cover the following conditions:

1. Defects or problems caused by improper installation or maintenance of materials.
2. Abuse, neglect or accidental damage of products.
3. Normal maintenance or upkeep of products.
4. Lighting, war, floods, or other acts beyond our control.
5. Misapplication of our products for their designed purpose, or misapplication according to local, state or national codes when in effect.
6. American Manufacturing Company or its representatives are not responsible for the labor for the replacement of defective parts.

Defective or warranted materials must be returned to us or a place designated by American Manufacturing. All returns must be accompanied by a return authorization number supplied by American Manufacturing.

American Manufacturing will in no way be responsible for any losses or damages incurred by failure of equipment, parts or service. NOTE: Some states do not allow exclusion of damages so this may not apply to you. There are no other warranties written or implied.

INTRODUCTION

Congratulations! You are now the owner of a state of the art wastewater treatment and recycling system by American Manufacturing Company, Inc. We have been in business for over 20 years and are considered one of the leaders in the On-Site Wastewater industry. With a staff having over 100 years collective experience in providing solutions to new sites and sites in need of repair, we are able to deliver an ecological, economical, easy to install and off-the-shelf **Perc-Rite® Drip** to owners like yourself.

When and How to use manual

This owner's manual should be read cover to cover initially, and then as needed to answer any questions or assist the owner in fulfilling their maintenance and inspection responsibilities.

When and Where to call for assistance or get additional information

If at any time you have a question about the **Perc-Rite® Drip** or observe any alarm or unusual condition, you should call your qualified service representative or installing contractor as soon as possible. The owner should record in the back of this manual, the contact name and telephone number of the qualified service representative and installing contractor. If further assistance is needed, call American Manufacturing Company, Inc. at 800-345-3132, or visit us at www.americanonsite.com.

Overview of Manual

The manual is organized to cover safety precautions and warnings, an overview of the **Perc-Rite® Drip** components, and the owner's responsibility. A startup log and limited warranty are in the back of this manual.

SAFETY PRECAUTIONS AND WARNINGS

The owner or operator of the **Perc-Rite® Drip** should take precautions consistent with operators working with sewage and/or electricity while working with, or around any of the system components.

Electrical Hazards

The **Perc-Rite® Drip** incorporates pump(s), float switches, relays and many electrical components that use 230 volts, 120 volts or 24 volts AC. Improper use of equipment can cause an electrical shock and may lead to serious injury or death.

Sewage Hazards

Proper attention should be given to cleanup when working in and around the septic and pump tanks and wastewater handling equipment to insure that disease causing bacteria are not transmitted to persons or contact surfaces. The septic and pump tanks can allow for a toxic buildup of poisonous gasses that can lead to serious injury or death if inhaled.

Heavy Lifting Hazards

The owner and/or operator should exercise proper caution when lifting heavy system components, such as pump tank lids. Improper lifting of heavy components can lead to loss of limb and/or mobility.

OWNER'S RESPONSIBILITY

Preventative Maintenance

The drip field area should receive only the most passive type yard uses. No use is recommended when conditions are wet. Under no conditions are any autos or heavy machinery to be allowed on the site.

In order to prevent erosion, the site should be established and maintained as a healthy lawn, or if wooded, mulched and stabilized. Erosion of the site and the adjacent areas should be controlled and eliminated. Surface waters should be diverted away from all components.

Scheduled Inspections

Within a month of operation the owner should contact the installer to have the system inspected for proper startup. After three months of operation the drip field should be walked and the system inspected. Symptoms to look for on the field walk inspection are patches of wetness. If symptoms are identified, notify your service provider immediately. The drip field should be walked & inspected at least annually.

A trained professional service provider, your American Dealer, should inspect the septic tank and pump chambers at least once a year. The septic tank should be pumped when the sludge level reaches 25% or approximately 12 inches, or when the scum layer on top is excessive. The flow meter reading in the hydraulic unit should be recorded with the date on a quarterly basis.

Alarms - Notifying Service Provider of alarm events

The system controller is equipped with an audiovisual alarm-to-alarm high water level condition. The high level alarm may be silenced by pressing the "silence" button on the side of the control. Since a high water level condition can be caused by pump failure, excessive infiltration, or an unusually large peak water use, the owner should call the service provider to determine the cause of the alarm prior to requesting service.

If at any time there are any indications of failure, such as the flow meter not moving during a dose or wetness in the area of the drip field, notify your service provider immediately.

Monitor & Regulate waste input to septic tanks

Since all processes in this sewage disposal system use biological activity to treat the wastewater, only typical biodegradable household wastes are to be disposed of in drains leading to the septic tank. Never dispose of pesticides, oil or grease based products, or non-fecal solids (especially feminine hygiene products) into the system. Minimize disposal of high strength over-the-counter type products such as bleach, and do not use colored toilet tissue.

OVERVIEW OF PERC-RITE® DRIP SYSTEM

The *Perc-Rite® Drip System* is a unique fluid handling system for dispersal of effluent wastewater in soil systems. The system incorporates filtration, time and level controlled application and ultra low rate drip distribution. In conditions where aerobic dispersal, such as "Low Pressure Distribution", of septic effluent is required or where land application with the use of conventional soil absorption fields are not acceptable, this system offers a unique method for subsurface distribution of the waste water effluent.

The *Perc-Rite® Drip System* will accommodate virtually any type of pretreatment process, whether septic tank (anaerobic), aerobic, lagoon, or any type of treatment facility. Only primary treatment (the removal of large settleable solids) of sewage is necessary for the operation of the system. Local soil and site conditions may require additional treatment for excessive organics, oil and grease or other contaminants.

Since the installation of the field distribution lines causes very little soil disturbance and effluent discharge volume from each emitter hole is insignificant, the installation of the system has very little site impact even in established lawns or park areas. After installation there are virtually no visible indications that the installation site is being used for disposal purposes. This system is especially suited for landscaped or wooded areas near buildings, trailer parks, apartment complexes or residential subdivisions.

The *Perc-Rite® Drip System* is operated via a "state of the art" controller, which is activated by level sensing devices (standard mechanical differential float switches) located in a dosing tank downstream from the pretreatment process or processes (typically a septic tank). When activated by the rising level of effluent in the dosing tank, the controller will enable the disposal cycle, and as dictated by the time clock, pump the effluent through a 115-micron disc filter and then to final drip dispersal.

Drip Tubing

The drip field supply line conveys the effluent to the drip absorption zone that is being dosed where it is discharged below the soil surface through a patented chemical-resisting pressure compensating self cleaning "drip" poly-tubing emitter. The emitters or "drippers" are located every two feet in the tubing and emit 0.65 gallons per hour per emitter. The dripper lines are automatically scoured (forward flushed) every 25 dosing cycles. This function is activated by the controller, which opens the field flush valve, thus allowing the flushed effluent to be returned to the pretreatment tank. The duration of this cycle is approximately three minutes. The flushing cycle produces a high

velocity cleansing/scouring action by the effluent along the inside walls of the dripper tubing and P.V.C. Manifolds. The tubing emitters are self-cleaning and require no maintenance.

The construction of the drip tubing is unique in that the internal diaphragm and labyrinth provide for an exact amount of effluent to be discharged from each of its emitters, which are spaced at two-foot intervals along the entire length of the drip tubing. Each emitter maintains a constant flow over pressure ranges of 7 to 70 psi. Because the effluent is distributed at an ultra low rate, large quantities of effluent may be economically distributed over large areas during controlled periods of time without saturating the surrounding soil.

Air Release Valves

The drip field return line conveys the effluent from the drip absorption zone (used to "flush" or clean the tubing) back to the pretreatment device. Each zone will have an air release valve housed in a small valve box at the highest point of the return manifold pipe. This valve will close when the water pressure arrives at the valve during each dose. The air release valve allows air to reenter the tubing after each dose to allow the tubing to drain. This also prevents the uphill tubing from draining water into the downhill tubing and overloading downhill tubing.

In the event of damage to the air release valve, effluent may leak from the system. This condition should be fixed immediately by replacing damaged parts. Air release valves should not be covered with soil or other material and should always be accessible to the service personnel.

Sequence of Operation: PERC-RITE® DRIP SYSTEM

The pump control panel is equipped with four float switches to control the timed doses to be discharged. The four float switches, "Redundant Off", "Standard Dose Enable", "Peak Dose Enable" (optional), and "High Level" function as follows:

Redundant Off - The water level must be high enough to overcome the "Redundant Off" (first & bottom) float in order for the pump to be permitted to run.

Standard Dose Enable - When the water level rises high enough to overcome the "Standard Dose Enable" (second) float and the time clock has timed out the preset time delay of 180 minutes (rest between dosing cycles for two zone designs) the pump will activate and the lead zone is dosed. The pump will continue to run for the length of time as adjusted on the pump run timer and then shut off. The pump will remain off until the internal time clock again times out the preset time delay (180 minutes) after which the pump will activate (as long as the "Standard Dose Enable" float is still up) and will run until the pump run timer finishes timing out. This process will repeat until the water level drops below the "Standard Dose Enable" float and the pump run timer has timed out. The rest time automatically varies with the number of Zones.

Peak Dose Enable - The control system will be equipped with a "Peak Dose Enable" circuit to manage peak flows and excess water use. If the rising water level activates the "Peak Dose Enable" (third) float, the "Pump - Off - Pump & Alarm" switch is set to "Pump", and the preset time delay has exceeded 108 minutes ("Peak Dose Enable" rest between cycles for two zone designs), the lead zone will be dosed. When the peak circuit has been deactivated the normal pumping cycle will resume. If the rising water level activates the "Peak Dose Enable" (third) float, the "Pump - Off - Pump & Alarm" switch is set to "Pump & Alarm", and the preset time delay has exceeded 108 minutes ("Peak Dose Enable" rest between cycles for two zone designs), the lead zone will be dosed and the "Peak Dose Enable" alarm will be activated. The audio portion of the alarm may be silenced by pressing the Test-Normal-Silence switch to the silence position. When the "Peak Dose Enable" float has returned to the down position the alarm will be deactivated and the normal pumping cycle will resume. The rest time automatically varies with the number of Zones.

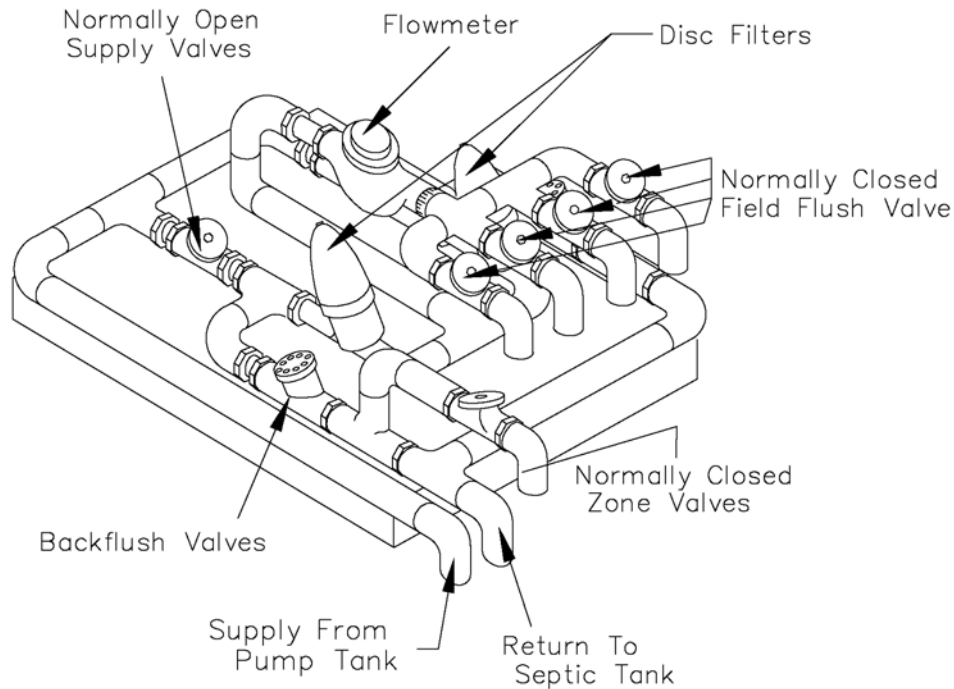
High Level - If the water level rises enough to overcome the "High Level" (fourth) float, the audiovisual alarm will activate. The audio portion of the alarm may be silenced by pressing the Test-Normal-Silence switch (located on the outside of the control panel) to the silence position. The alarm circuit will auto reset when the "High Level" float returns to its normal (down) position. The high-level alarm float is a wide-angle float in order to latch the alarm signal.

CONTROLLER

The "state of the art" controller is enclosed in an outdoor electrical control box located near and connected to the hydraulic unit. The control panel uses 115 or 230 volt power and the microprocessor has 120V and 24V AC inputs and relay outputs for automatic operation of the *Perc-Rite® Drip System*. When in the "Hand" or "Off" position, the manual switches (Hand-Off-Auto) on the door of the control panel completely bypass the microprocessor. The "Hand" position will allow manual operation of the component in the event of a microprocessor failure.

NOTE:

THE HOMEOWNER ASSUMES FULL RESPONSIBILITY FOR CONDITIONS OR MALFUNCTIONS DUE TO CHANGES IN PUMP RUN TIME BY ANYONE OTHER THAN A QUALIFIED SERVICE REPRESENTATIVE. LEAVING THE PUMP CONTROL IN THE "HAND" POSITION WILL FORCE THE PUMP TO RUN CONTINUOUSLY AND MAY RESULT IN PUMP FAILURE.



Hydraulic Unit

The submersible pump delivers unfiltered effluent through each filter. The filter backflushing schedule is triggered at the beginning of each dose cycle. The backflushing sequence is as follows. One filter valve closes, thus blocking the flow of unfiltered effluent to that filter. After a short delay, the other flushing valve opens, thereby backflushing the unused filter. The accumulated impurities discharge back into the pretreatment unit. The closing and opening procedure of the filter and back flush valves causes a change of flow within the unit to provide effluent from one filter to backflush the other filter. The backflush procedure lasts approximately fifteen seconds then the back flushing valve closes. Only after the first filter has completed its backflushing cycle, will the second filter begin its cycle of backflushing in the same manner as the first. Effluent will then be pumped through clean disc filters, then through the **flow meter** and finally through the zone valves to the drip field supply line. During extended dose times the disc filters are re-backwashed to assure optimum operation.

System Parameters Simplex System w/ 1 or 2 Zones & 2 Disc Filters

- a. System Fail indicated by high level alarm or unusual wetness in the field.
- b. Standard Rest time between doses = 180 minutes, 4 doses per day per zone.
- c. Peak Rest time between doses = 108 minutes, 6.6 doses per day per zone.
- d. Flow meter on hydraulic unit (record periodically to monitor activity).
- e. To remove pump or zone from service place its' control switch to "off".

System Parameters Simplex & Duplex System w/ 4 Zones & 2 Disc Filters

- a. System Fail indicated by high level alarm or unusual wetness in the field.
- b. Standard Rest time, 4 doses per day per zone;
 - 4 zones in use doses = 90 minutes,
 - 3 zones in use doses = 120 minutes,
 - 2 zones in use doses = 180 minutes,
- c. Peak Rest time between doses
 - 4 zones in use doses = 54 minutes,
 - 3 zones in use doses = 72 minutes,
 - 2 zones in use doses = 108 minutes,
- d. Flow meter on hydraulic unit (record periodically to monitor activity).
- e. To remove pump or zone from service place its' control switch to "off".

AMERICAN "PERC-RITE"[®]

WASTEWATER DRIP SYSTEMS

2 ZONE or 4 ZONE
SIMPLEX or DUPLEX
CONTROLLER

SIEMENS MICROPROCESSOR - INPUTS AND OUTPUTS

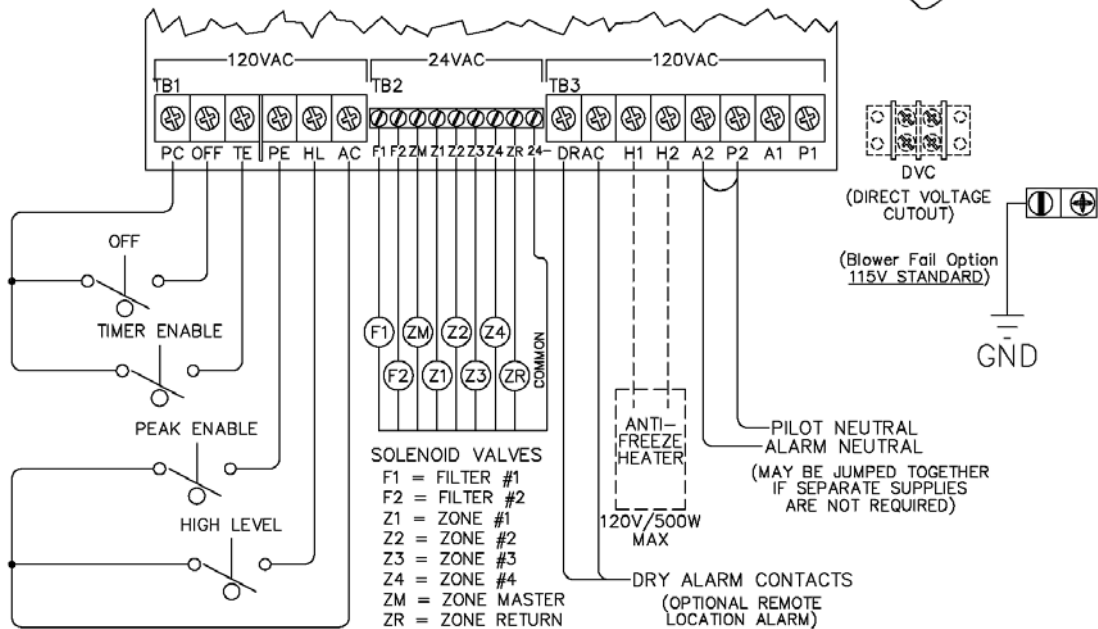
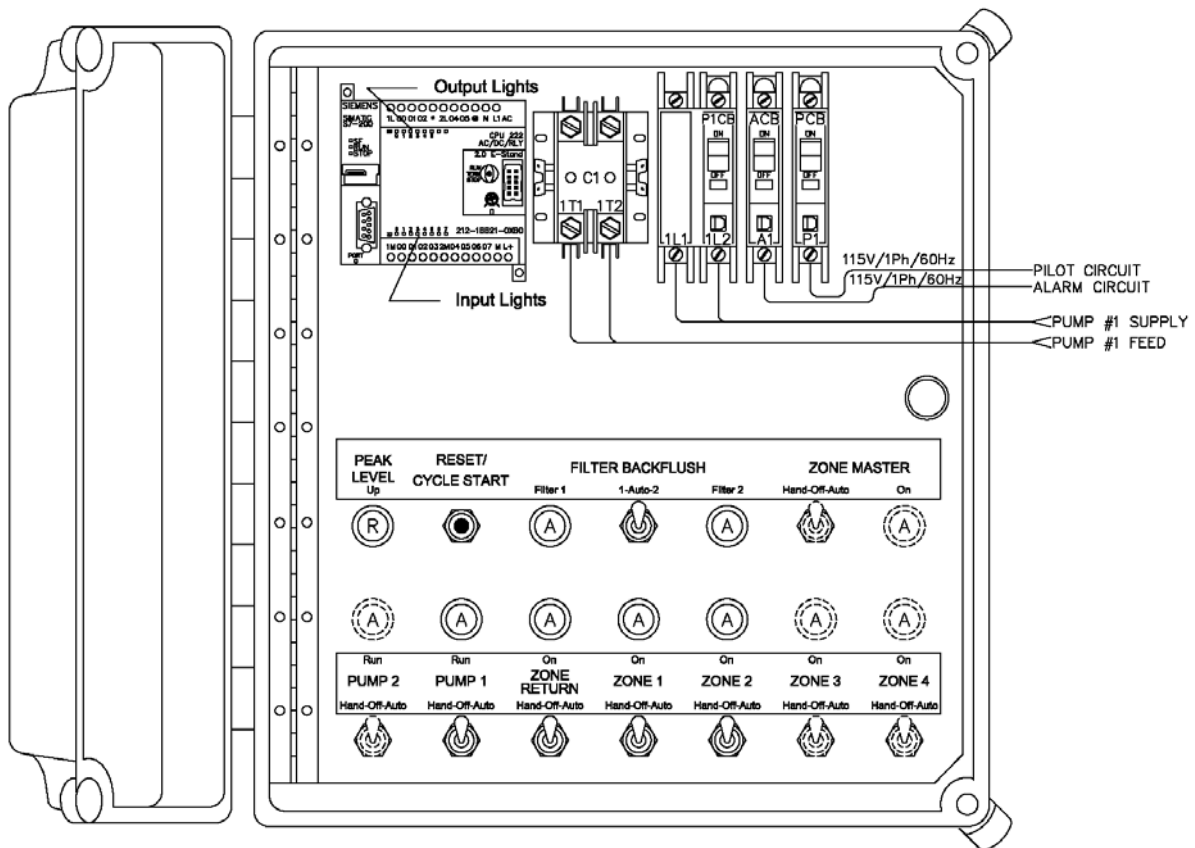
The Siemens microprocessor has inputs on the bottom and outputs on top. The two zone units have 8 inputs (0-7) and 6 outputs (0-5). The three and four zone has the following;

Output	Q0	.0	.1	.2	.3	.4	.5	.6	.7	Q1	.0	.1				
Input	I0	.0	.1	.2	.3	.4	.5	.6	.7	I1	.0	.1	.2	.3	.4	.5

MICROPROCESSOR - INPUTS AND OUTPUTS

R E F A	R E F B	R E F C		R E F A	R E F B	R E F C	
Input I0	Input I0	Input I0	Description	Output Q0	Output Q0	Output Q0	Description
.0	.0	.0	DOSE CUTOUT	.0	.0	.0	PUMP 1
.1	.1	.1	OFF LEVEL FLOAT	.1	.1	.1	ZONE RETURN
.2	.2	.2	DOSE ENABLE FLOAT	.2	.2	.2	FILTER 1
.3	.3	.3	PEAK ENABLE FLOAT	.3	.3	.3	FILTER 2
.4	.4	.4	RESET/CYCLE START	.4	.4	.4	FIELD 1
.5	.5	.5	PUMP 1	.5	.5	.5	FIELD 2
.6	.6	.6	ZONE 1 VALVE		.6	.6	FIELD 3
.7	.7	.7	ZONE 2 VALVE		.7	.7	FIELD 4
	.0	.0	ZONE 3 VALVE		.0	.0	PUMP 2
Input I1	Input I1	Input I1		Output Q1	Output Q1	Output Q1	
	.1	.1	ZONE 4 VALVE		.1	.1	ZONE MASTER
	.2	.2	PUMP 2				
	.3	.3	CURRENT SENSOR				
	.4	.4	HIGH LEVEL (OPTION)				
	.5	.5	AUX. INPUT 1				

References: "REF A " is Two Zone Simplex System
 "REF B " is Four Zone Simplex System
 "REF C " is Four Zone Duplex System



- 1) Leave switches in "Auto" or "Off" - Never leave switches in "Hand" or "On" position. The Off position will take component out of service.
- 2) To Silence Alarm - On outside of control push "Test-Off-Silence" switch to "Silence" and release.
- 3) Leave power "on" - There is a strip heater in the hydraulic unit which is powered by the control panel. Power must be left on to protect unit from freezing.
- 4) To start automatic cycle - Push and hold "Reset" button for over 5 seconds until an automatic cycle starts. Then release button.
- 5) Manual Operation - Place "H-O-A" (hand-off-auto) switch to "Hand". This position is like an "on switch" and should operate the individual component regardless of other conditions.

Name: _____

Date: _____

Owners' Address: _____

American Perc-Rite® Drip Startup Log				USER LOG			
Line No.	As-Built Value	Description	Number of Zones: ____	Date	Date	Date	Date
1		BEDROOMS					
2		GALLONS PER DAY					
3		TEXTURE GROUP					
4		GPD/FT2 DESIGN SOIL LOADING RATE					
5		TOTAL LINEAR FEET TUBING					
6		GPD/LF FT DESIGN TUBING LOADING RATE					
7		METER READING					
8		ZONE 1 LINEAR FEET OF TUBING					
9		ZONE 1 NUMBER OF FIELD FLUSH CONNECTIONS					
10		ZONE 1 GPM DOSING FLOW RATE					
11		ZONE 1 GPM TOTAL FLUSHING FLOW RATE					
12		ZONE 1 RUN TIME					
13		ZONE 2 LINEAR FEET OF TUBING					
14		ZONE 2 NUMBER OF FIELD FLUSH CONNECTIONS					
15		ZONE 2 GPM DOSING FLOW RATE					
16		ZONE 2 GPM TOTAL FLUSHING FLOW RATE					
17		ZONE 2 RUN TIME					
18		ZONE 3 LINEAR FEET OF TUBING					
19		ZONE 3 NUMBER OF FIELD FLUSH CONNECTIONS					
20		ZONE 3 GPM DOSING FLOW RATE					
21		ZONE 3 GPM TOTAL FLUSHING FLOW					
22		ZONE 3 RUN TIME					
23		ZONE 4 LINEAR FEET OF TUBING					
24		ZONE 4 NUMBER OF FIELD FLUSH CONNECTIONS					
25		ZONE 4 GPM DOSING FLOW RATE					
26		ZONE 4 GPM TOTAL FLUSHING FLOW					
27		ZONE 4 RUN TIME					
28		PEAK ENABLE CYCLE COUNTER					
29		HIGH LEVEL CYCLE COUNTER					
30	CONTRACTOR STARTUP REPRESENTATIVE:						
	STARTUP DATE:						

CONTRACTORS NAME & PHONE:

Note to Owner: Any changes to pump run timer should be recorded in manual on this page.

AMERICAN MANUFACTURING COMPANY, INC.

P.O. BOX 97, ELKWOOD, VA 22718-0097, 1-800-345-3132