

SERVICE MANUAL

AMERICAN “PERC-RITE[®]”

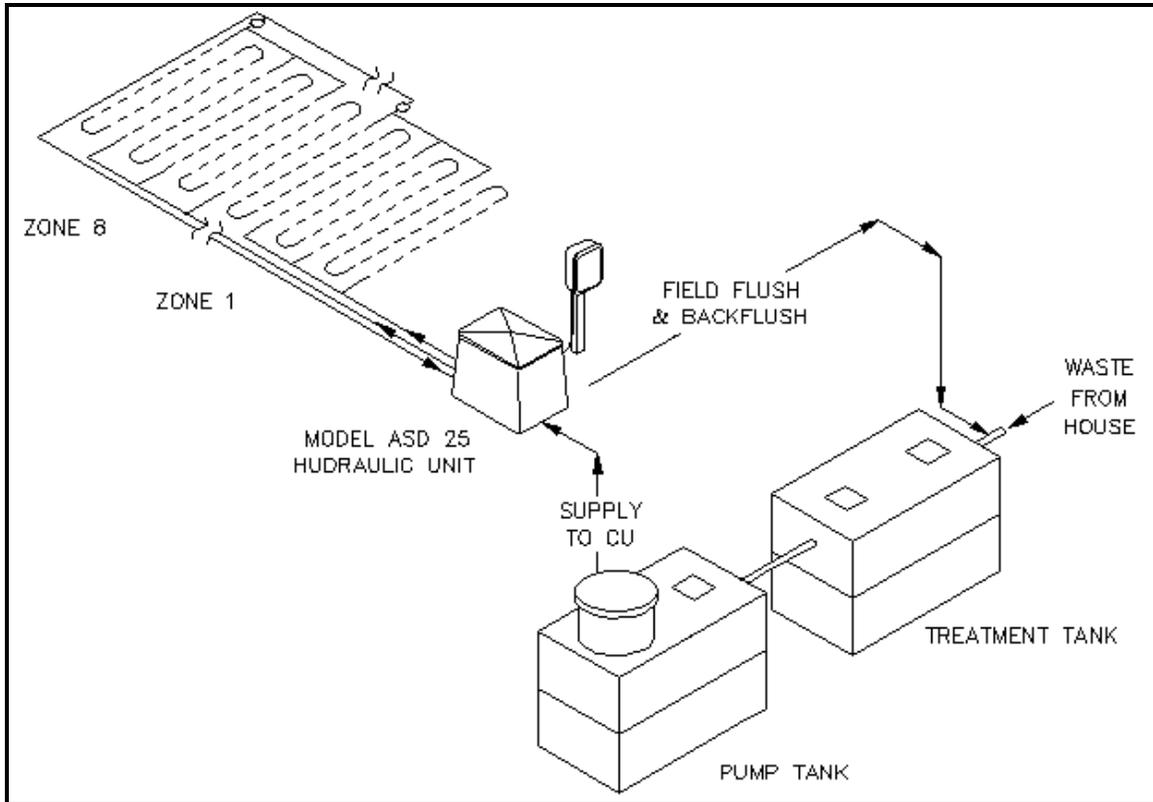
25 GPM WASTEWATER DRIP SYSTEMS

4 ZONE Up To 16 ZONE

SIMPLEX or DUPLEX

PATENT NO. 5,200,065

PATENTNO 5,766,475



Dealer

MANUFACTURED BY:
AMERICAN MANUFACTURING COMPANY INC.
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IMPORTANT NOTICE

This Dealer Manual is intended to give general information and guidance to authorized dealers and other qualified installers. The installer must determine the suitability of an American Manufacturing Company Septic Drip Disposal System for sewage disposal regarding basic design and layout and how the system functions in a specific site. The designer must make the final decision as to the suitability of a system. Suitability should be based on consideration of the general standards and information contained herein as well as other applicable waste disposal reference materials, specific topography, soil characteristics, space limitations, and other factors associated with a particular project. Consequently, American Manufacturing Company, Inc., a Virginia corporation, shall not be held liable in any manner to design engineers and other designers or installers of sewage disposal systems for claims arising from the use of the information contained herein nor actions arising from the reliance upon the accuracy of such information.

Additionally, unless American Manufacturing Company, Inc. or its employees are primarily responsible for a particular project, American Manufacturing Company, Inc. assumes no responsibility regarding, and shall not be liable to, any purchaser of a System in any manner for any of the following:

- a. any decision regarding the suitability of a Drip Disposal System
- b. the design and/or installation of a Drip Disposal System for any particular project, nor
- c. the utility or functioning of a Drip Disposal System for the project.

Purchaser's rights are set forth in the limited warranty and the Equipment Purchase Contract (invoice) in the event that the equipment itself is defective.

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DEALER RESPONSIBILITY

PURPOSE

The purpose of this section is to outline the responsibilities of the Dealer regarding the installation, monitoring, maintenance and warranty of the drip dispersal system as part of an on-site sewage treatment system.

INSTALLERS SCHEDULE OF DUTIES

1. The Dealer shall be responsible for the entire installation and shall only sell and install systems according to approved plans and permits.
2. The Dealer shall be responsible for insuring proper electrical installation and startup including recording startup date and initial meter readings.
3. The Dealer will meet standards for operation and maintenance per the jurisdictional health department.
4. The Dealer shall assure that all employees who work on the American Drip System are trained, understand and can perform operation and maintenance per the Drip System manufacturer manuals.
5. The Dealer is responsible for informing the owner within the first month of operation of the type of system installed and the owner's responsibilities.
6. The Dealer is responsible for the first annual inspection after the 3rd month of operation.
7. The Dealer is responsible for one visit after first year of operation. The visit to include the following;
 - Sludge Judge the septic tank blanket
 - Inspect the drip system hardware for operation
 - Inspect system with operational checklist
 - Check landscaping for interference with system
 - Check water usage and evaluate usage compared to design

The inspection frequency should be set based on the first year's evaluation. Future inspections should be at a minimum once per year. If high strength waste is suspect, take sample for BOD, SS, and FOG.

8. Removal, replacement or alteration to this system must be in compliance with all applicable current county health department requirements, governing sewage treatment regulations and the manufacturer.

OWNER'S RESPONSIBILITIES

1. Acknowledge receipt and comply with instructions of the owner's manual provided. Reference owner's responsibilities in manual.
2. Notifying the Dealer or the designated agent immediately of any problems with the sewage treatment system.
3. Keeping the monitoring / access covers free of obstructions at all times.
4. Granting Installer / Operator and health department personnel access to the owner's property to service or inspect the sewage treatment system at any time during warranty period.
5. If system fails, owner will notify operator, manufacturer, and local health department.
6. Pumping the septic tank or other costs associated with the treatment system is not covered under any warranty. Pumping is required from time to time (frequency) varies by jurisdiction just like in conventional systems due to the production of solids during the treatment process.
7. Failure to make any payments when due shall be considered a breach of warranty and the operator may terminate warranty work without notice.

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 **AMERICAN PERC-RITE® SYSTEM** 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 **AMERICAN PERC-RITE® SYSTEM** 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 **AMERICAN PERC-RITE® SYSTEM** should take precautions consistent with operators working with sewage and electricity when working with, or around any of the system components.

Electrical Hazards

The **AMERICAN DRIP SYSTEM** 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.

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.

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", 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 (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 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.
- 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 been exceeded ("Peak Dose Enable" rest between cycles), the lead zone will be dosed. When the "Peak Dose Enable" 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 been exceeded ("Peak Dose Enable" rest between cycles), 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.
- High Level - If the water level rises enough to overcome the "High Level" (fourth) float, the audio/visual 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 latch until manually reset after the "High Level" float returns to its normal (down) position. The alarm circuit is manually reset by switching the High Level Reset/Off-Normal switch (located inside the control panel on the inner door) to the Reset position then back to normal.

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 50 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, P.V.C. manifolds and emitters.

The construction of the "RAM" 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 RAM drip tubing. Each emitter maintains a constant flow over pressure ranges of 7 up 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 in each zone. The 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.

Specifications

DISC FILTERS - Disc Filters shall be an oblique filter, entirely of plastic, with two 3/4" male end connections to NPT schedule 40 pressure PVC. The filter elements shall consist of grooved rings, mounted on a spine, forming a cylindrical filter body. The rings are to be kept together by a spring seated at the bottom of the filter cover. The out-in filter shall be of the screw in type with nitrilic rubber o-ring seal. The body materials shall be polyester, the spine and rings shall be polypropylene, and the spring shall be stainless steel. The nominal filtration capacity of the filter shall be 115 microns.

DRIPPER TUBING - The dripper tubing shall be Netafim Bioline pressure compensating dripperline for wastewater. The tubing shall be nominal 0.61 gallons per hour (+/- 5% flow rate from 7 to 60 psi). The tubing shall function as a turbulent flow emitter between 0 and 7 psi, ensuring that the nominal design flow is not exceeded at system start-up. The tubing shall be polyethylene 120 psi rating. Tubing end connections and splice connections shall be manufactured specifically for the tubing and for connection to standard schedule 40 NPT adapters.

AUTOMATIC CONTROL VALVES - The automatic control valves shall be solenoid activated diaphragm valves by Bermad. The body and cover shall be reinforced nylon. The metal parts shall be stainless steel, the diaphragm shall be nylon-fabric reinforced poly isoprene. The seals shall be Buna-N. These valves shall operate electrically using hydraulic pressure to open and to close.

RETURN PRESSURE ASSEMBLY FOR ZONE RETURN CONTROL VALVE - The automatic zone return valve shall, in the event the drip zones are over 8 feet in vertical elevation above the hydraulic unit, have installed a "return pressure assembly". The assembly is to be used to prevent the line from draining after or during each dose. See standard detail.

GRAVITY PIPING - All gravity piping shall be schedule 40 PVC DWV as a minimum. Fittings shall be Schedule 40 PVC suitable for underground installation. All joints shall be solvent welded with the use of primer and PVC Glue.

NON-DRIPPER LINE PRESSURE PIPING - All non-dripper line pressure piping shall be PVC schedule 40 pressure rated. Rigid piping shall be standard ASTM 1120 for use with solvent welded Schedule 40 fittings. Flex piping shall be schedule 40 PVC flex pipe for use with pressure fittings.

FLOAT SWITCHES - Float switches for level indication and control shall be encapsulated mercury or mechanical differential switches. The switches shall be provided by American Manufacturing, or equal.

GENERAL VALVES - All gate, ball, globe and check valves shall be Schedule 40. Check valves shall be of the swing check design of metallic bronze with corrosion resistant metal hinge pin for use in wastewater.

PIPING DISCONNECTS - Piping disconnects shall be PVC schedule 80 unions.

AIR RELEASE VALVES - Air release valves shall be resilient seat "pop-up" type air release valves for use with filtered effluent (nominal filtration size of 115 microns.)

WIRE SPLICES - Field wire splices shall be installed in suitable wire splice pull boxes with waterproof connections for access to splice connections. The boxes shall have structural capacity for in ground installation and light vehicle yard care traffic.

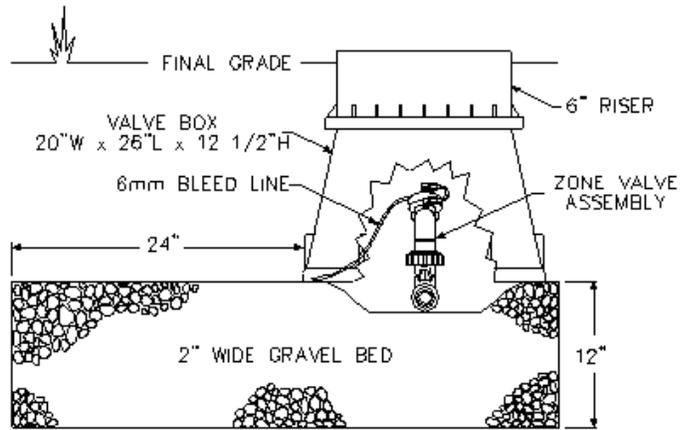
SPECIAL DRIP EQUIPMENT - All non-specified drip equipment shall be as supplied by American Manufacturing Company, Inc., including the controls, drip hydraulic unit, pumps, and specialty fittings.

PIPE BEDDING - In ground piping shall be installed according to local codes. Piping shall be installed on original soil or suitably compacted fill or gravel bedded excavations on original soil. Freestanding piping shall be schedule 40 PVC and assembled with restrained joints.

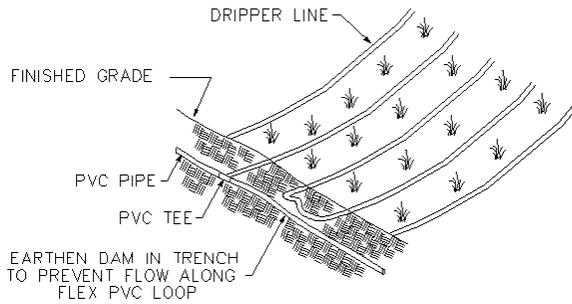
STANDARD DETAILS

REMOTE ZONE VALVE

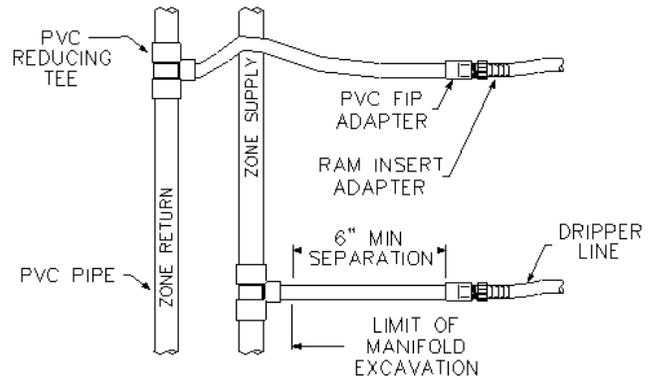
The remote zone valves are typically used on larger systems with more than four zones or when the zones are below the elevation of the pump chamber. On slopes greater than 5% a bentonite clay plug should be installed three feet up contour from the valve box to prevent effluent from piping down the manifold and filling the valve box.



REMOTE ZONE VALVE ELEVATION DETAIL
NTS



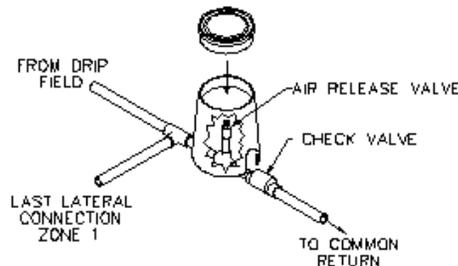
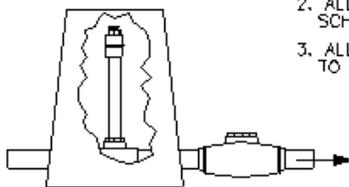
DRIPPER LINE SECTION DETAIL
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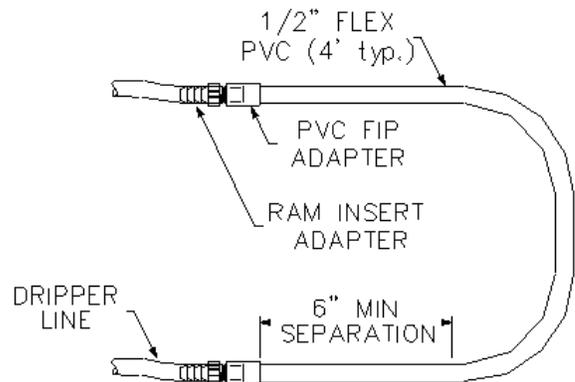
DRIP LINE CONNECTION TO MANIFOLD
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NOTES:

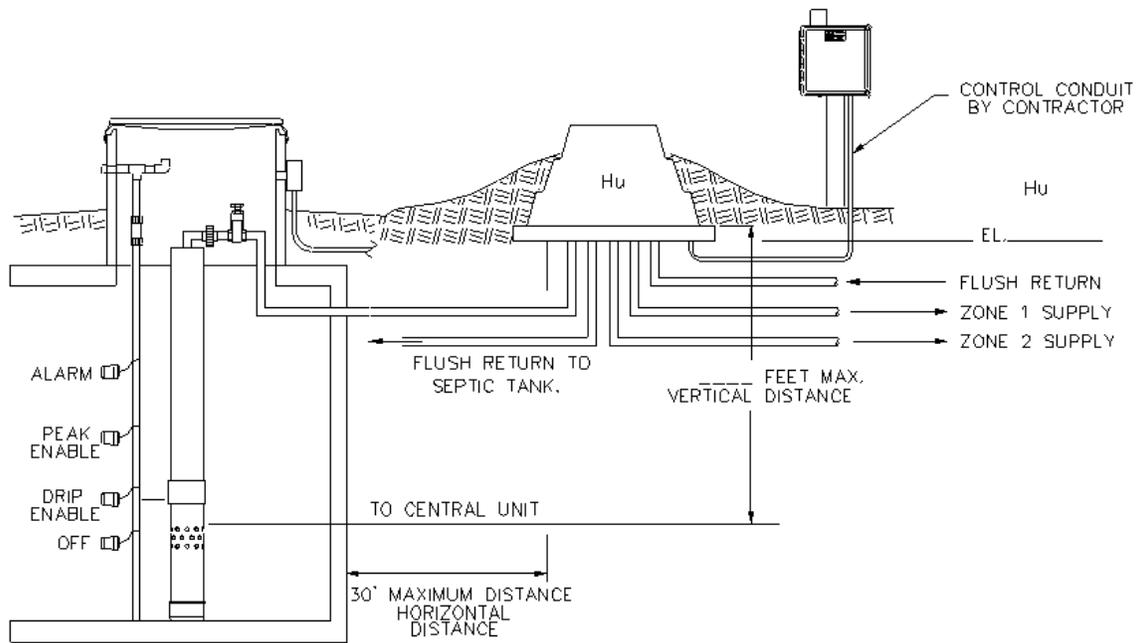
1. PUMP & FLOATS SERVICEABLE FROM GROUND SURFACE.
2. ALL FITTINGS TO BE PVC SCH 40 PRESSURE.
3. ALL THROUGH CONNECTIONS TO BE WATERTIGHT.



AIR RELEASE & CHECK VALVE DETAIL



BURIED DRIP LOOP CONNECTION
NTS



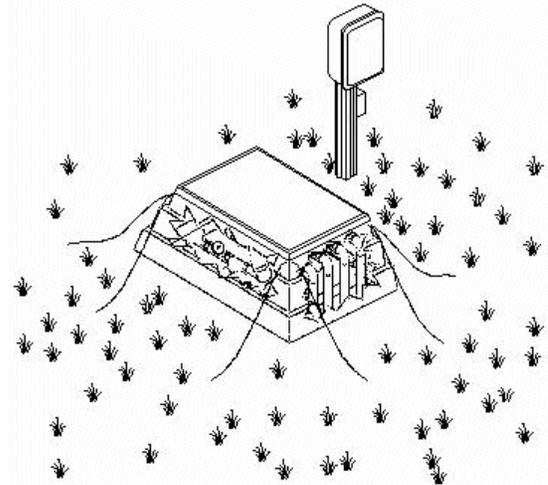
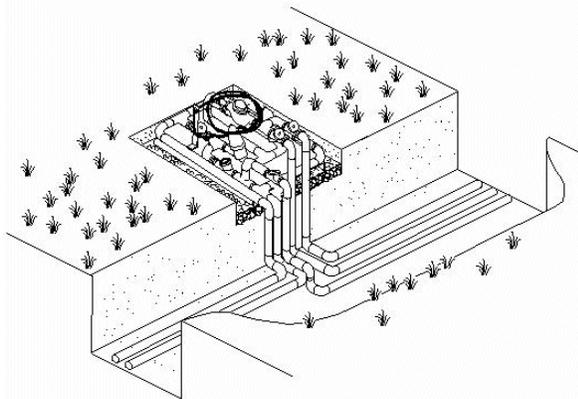
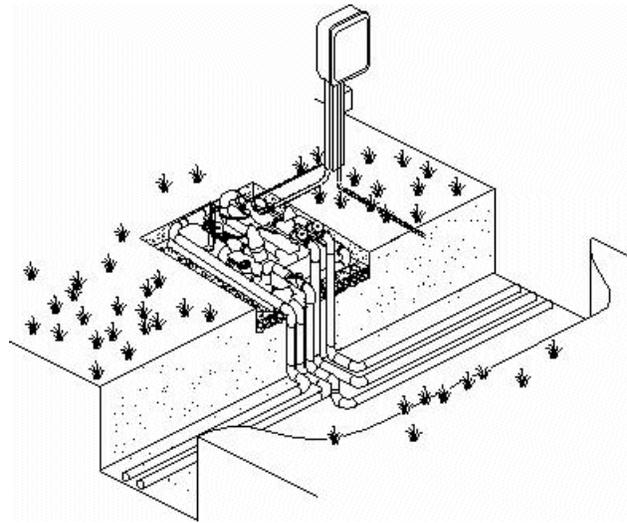
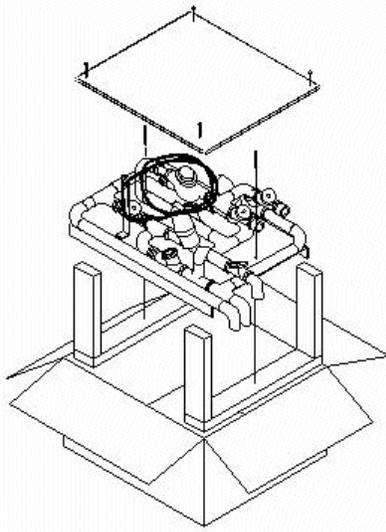
PUMP CHAMBER AND HYDRAULIC UNIT REQUIREMENTS

The hydraulic unit (HU) must be close to the pump chamber as shown. The limiting factor is the back flushing sequence for the disc filters. The (HU) must be within 30 feet horizontal and 8 feet vertical distance for the pump to have enough TDH to complete back flushing.

The return line to the septic tank must have gravity flow back to the septic tank. The 1-1/2" line must have a 2% slope to drain back or a check valve should be placed at the (HU) to prevent backpressure on the back flush valves. If longer distances are used, the line size should be increased to 2".

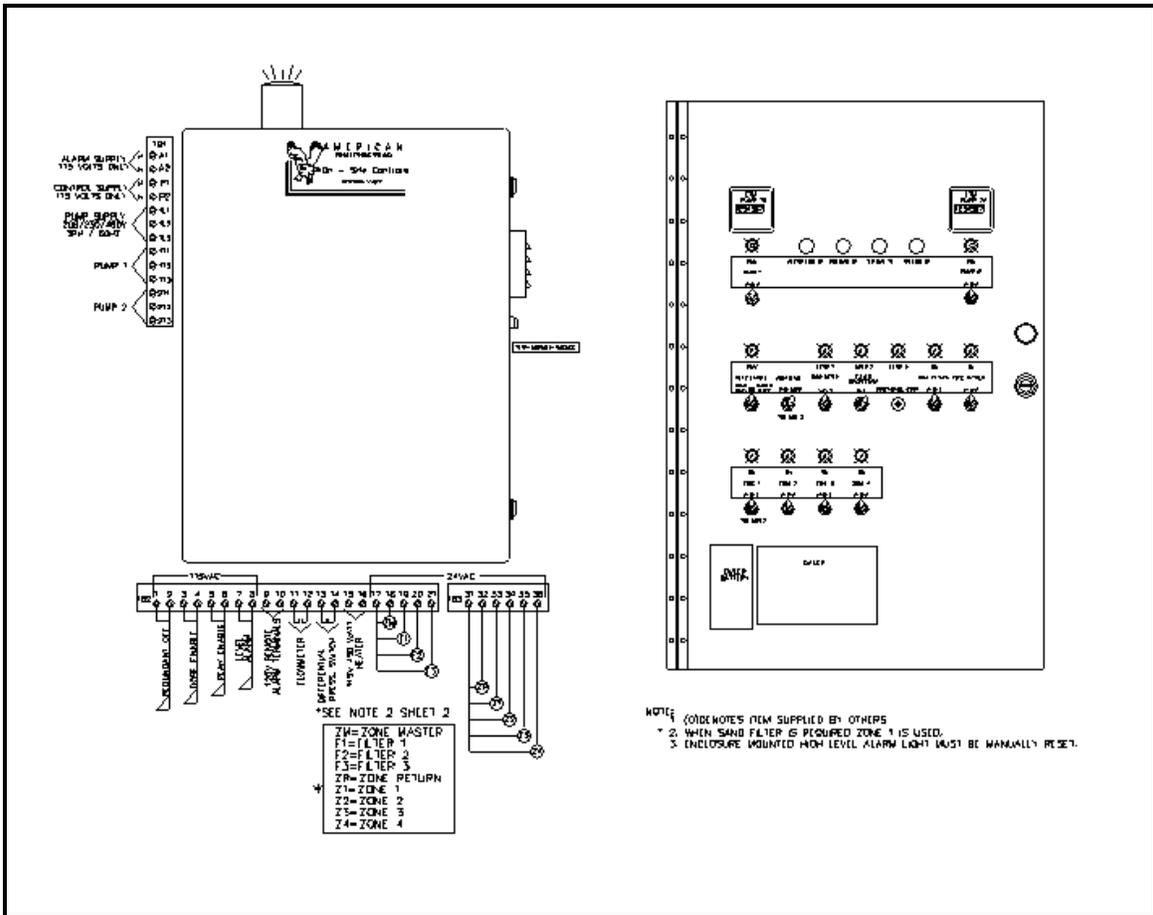
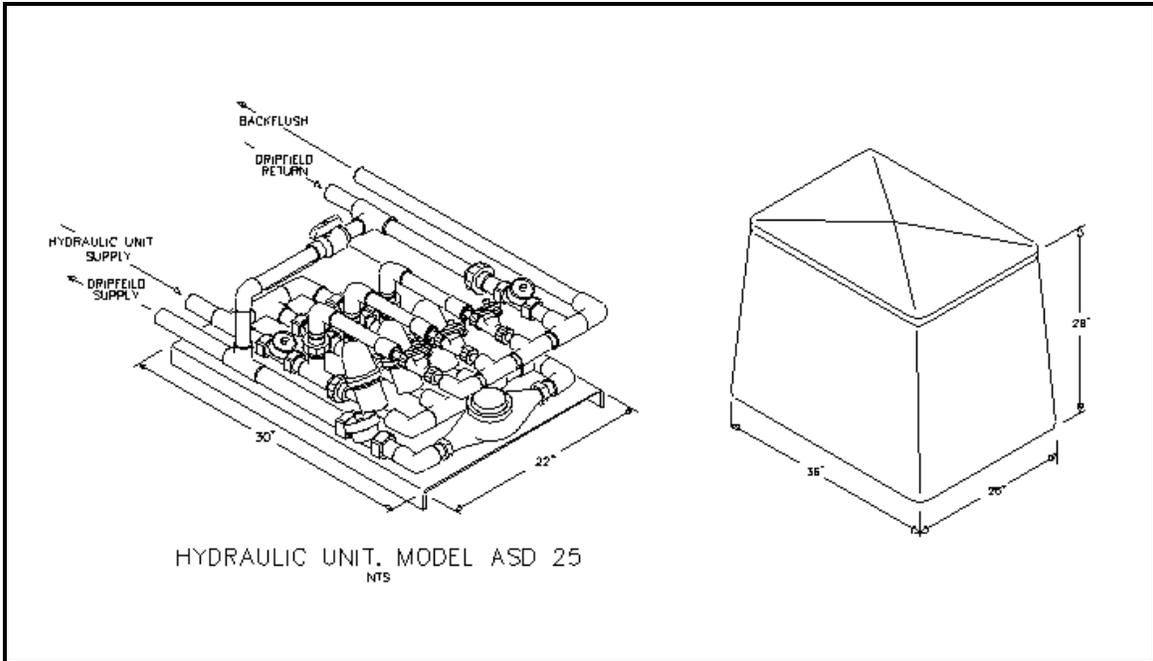
The pump should be placed as shown, secured on the floor of the pump. The pump discharge pipe must have **NO WEEP HOLE** . The pump is to be hard wired into a junction box.

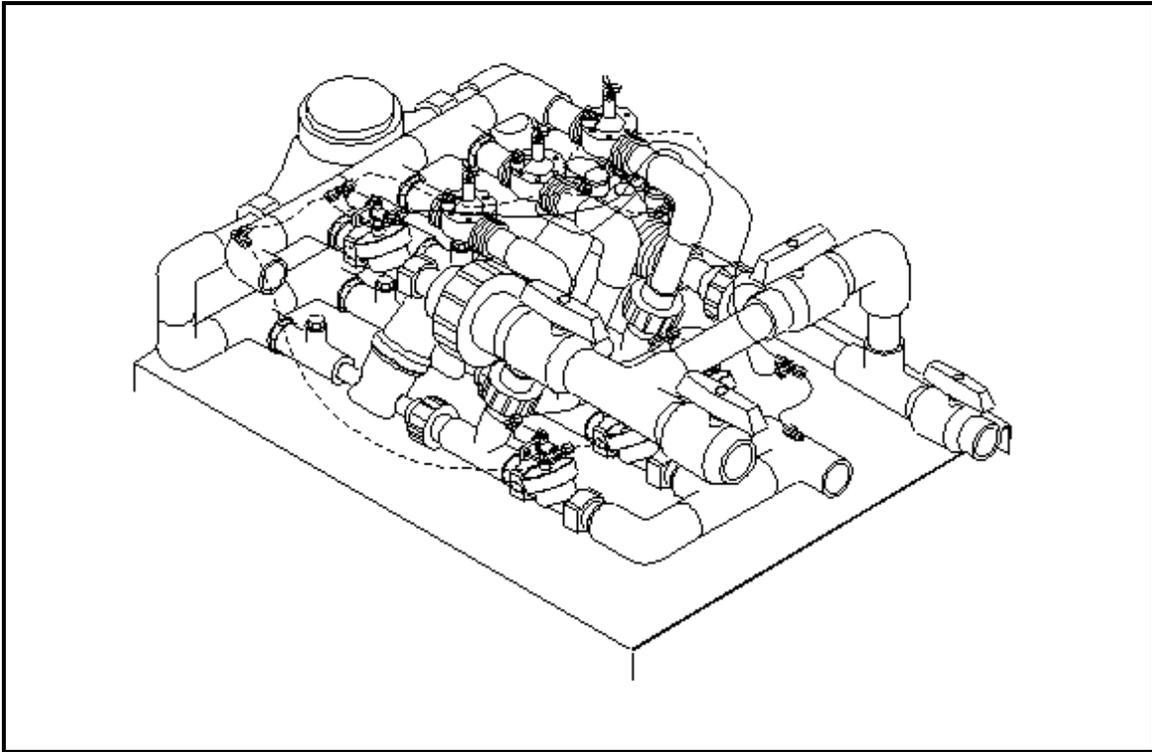
1. Recommend half to full day storage between drip enable and high level alarm.
2. Recommend at least one-quarter day storage between alarm and inlet of tank.
3. Peak selector switch is located on circuit card and should initially be left in "Pump & Alarm" to educate owner on water management.



HYDRAULIC UNIT INSTALLATION STEPS

1. Remove the Hydraulic Unit from the shipping box and inventory contents. Make sure there is no shipping damage prior to installation.
2. Dig a side trench to set the hydraulic unit. The area must be free from debris or rainwater infiltration. (If the Hydraulic Unit is set below grade more than 4" the unit enclosure must have a positive drain.) Center the unit on a gravel bed with the pipes slightly over the edge. Connect the supply and return piping.
3. Install the control panel on two 4"x4" (minimum) pressure treated post with at least 3 feet of clearance from the bottom of the control panel to the ground. The electrician shall provide the sources of power to the control panel per the schematic enclosed in the control enclosure. The control wire shall be run through conduit to the control with no splices and connected to the terminal strip provided. Connect the heater, the pump control interface to the control panel.
4. Install the insulated enclosure and backfill the area making sure not to damage any piping or electrical components. Provide positive drainage from around the central unit to insure no excessive rainwater will enter and rainwater, which does enter, will drain out. Provide a minimum of 4" of backfill above the bottom edge of the enclosure to help enclosure heater maintain temperatures above freezing. Additional mounding is preferred for freeze protection and aesthetics.





25 gpm Filtration Unit
Three 3/4" filters

NOTES:

1. The hydraulic unit above is shown in an isometric view with hydraulic tubing. High-pressure lines are solid, low-pressure relief lines are dashed.
2. The "normally closed" zone valves and zone return valve have "normally open" solenoids (typically unmarked). These valves are supplied pressure through the solenoid which, when not activated, places pressure on the diaphragm.
3. The "normally open" supply valves have "normally closed" solenoids. The pressure is supplied through the operator and tee connection. With the solenoid not activated, pressure bleeds off the diaphragm.

Installation Procedure Summary

1. Prepare field location for installation.
2. Set septic and pump tanks.
3. Dig header ditch for field manifold.
4. Install dripper tubing.
5. Install loops (flex tubing).
6. Dig ditches for conveyance lines (supply & return).
7. Place Central Unit and mount control panel.
8. Dry fit pressure lines and field manifolds.
9. Set switch tree in pump tank.
10. Glue all fittings and place valve boxes.
11. Install electrical (and phone line if applicable).
12. Check power supply and power up unit.
13. Provide one-day volume of clean water for startup.
14. Pressure check all fittings and lines.
15. Inspection of field and loops.
16. Flush all fields through the air release valves.
17. Set run time for Central Unit.
18. Check setup values against calculated values.
19. Find leaks and repair.
20. Backfill once lines and fields are determined to have no leaks. Back filling is to be controlled to prevent the damaging of pipes or fittings.
21. Grade and seed site.
22. Log data registers and startup values.

DUAL ZONE DOSE OPTION

In normal operation, the Perc-Rite® control panel will dose one zone at a time. The American Perc-Rite® controller may be set for dosing two zones at a time while maintaining single zone flush operations. All other operations are the same. The control will automatically log in dual zone dosing registers inside microprocessor when set up to do dual zone dosing.

Startup Procedures - *AMERICAN SEPTIC DRIP*

This procedure outlines the startup procedures for the drip dispersal field tubing system. The process includes flushing dirt, pipe shavings and other possible construction debris out of the tubing and checking dosing rates in a three-step process. First, flush through air release valves, second flush through normal flushing process (while checking flow rate), and finally checking final dose flow rate.

I. System Flushing Air Release Valves Off

- a. Be sure pump chamber is full of clean water. Check lights on controller for float activation. The "Off" float and "Standard Enable" float should be in the up position before starting field flush. Continue to fill tank to "alarm" float. It should take one days' flow of clean water to flush tubing.
- b. Place all toggle switches, on the inner door, in the "Off" position and place filter back flush switch in the "Auto" position.
- c. Remove air release valves, attach piece of 1/2" black flex PVC (5' maximum) to 1/2" white PVC with dry coupling (do not glue) and place end to direct discharge away from excavation.
- d. Switch pump to "Hand" position. Pump should deadhead with no flow meter movement.
- e. Place filter back flush to filter #1 position. Note blue valve opening. Back flush for 15 seconds, Place filter back flush switch to the "Auto" position.
- f. Place disc filter back flush to filter #2 position. Note blue valve opening. Back flush for 15 seconds, Place filter back flush switch to the "Auto" position.
- g. Turn zone #1 to hand position to allow a manual field flush. After water starts discharging from flex PVC, continue to flush for at least three (3) minutes or until no debris (dirt, PVC shavings, etc.) is noted, whichever is greater.
- h. Repeat item "e" & "f".
- i. Repeat "g" & "h" for each additional zone.
- j. Place all toggle switches, on the inner door, in the "Off" position and place filter back flush switch in the "Auto" position.
- k. Remove black PVC hose, dry, and glue coupling with air release valves.
- l. Remove disk filters and remove any pipe shavings or debris then replace filters.

II. Field Flush Flow Test

- a. Determine each zone flushing GPM by multiplying the number of lateral connections by 1.6 and adding to the dosing GPM. (See "a" in step III) Resultant should not exceed 15 GPM for the two-disc filter rack.
- b. Switch pump to "Hand" position. Pump should deadhead with no flow meter movement.
- c. Place filter back flush switch to filter #1 position. Note blue valve opening. Back flush for 15 seconds. Place filter back flush switch to the "Auto" position.
- d. Place filter back flush switch to filter #2 position. Note blue valve opening. Back flush for 15 seconds. Place filter back flush switch to the "Auto" position.
- e. Turn switch for "Zone #1" and the "Zone Return Valve" to "Hand" position to allow a manual flush. After water starts flowing through zone return valve, flush for three (3) minutes, check flow rate and compare with design flushing flow rate.
- f. Place all toggle switches, on the inner door, in the "Off" position and place filter back flush switch in the "Auto" position.
- g. Repeat item "b", "c", "d" & "e" for each additional zone.

- h. After flushing the last zone leave the pump and zone valve in the “Hand” position and close the zone return valve “Off”. After the flow rate stabilizes and compares to design flow rate, see next section.

III. Field Dose Flow Test

- a. Determine each design zone dosing Gallons Per Minute (GPM) by the following formula: (If installed as designed refer to calculation sheet.)

$$\frac{\left(\frac{\text{Length of Tubing}}{2}\right) \times .65 \text{ Gallons per Hour}}{60 \text{ Minutes per Hour}} = \text{Gallons per Minute Dosing}$$

- b. Determine dosing flow rate in the last zone flush tested. The rate should be close to value calculated in “a” above. Check for leaks and repair as necessary.
- c. With all toggle switches in the “off” position, back flush filters as described above in step II’s “b”, “c”, & “d”.
- d. Move the next zone switch to the “Hand” position and make sure the Zone Return switch is in the “off” position, watch flow meter slow as system fills. When pressurized, measure flow rate with watch. The rate should be close to value calculated in “a” above. Check for leaks and repair as necessary.
- e. Repeat for each additional zone.
- f. Place all switches in the “Auto” position.

IV. Zone Return Pressure Assembly Flow Test

- a. In some cases when the drip field is around 10’ in elevation above the hydraulic unit or when it is significantly above the unit the valve will not close properly and continue to recycle wastewater back to the septic tank. If this condition occurs, follow the following steps.
- b. Remove the zone return connection and reinstall a short 1” nipple in the return valve.
- c. Place the “return pressure assembly” in the return line as per standard detail on page 19.

V. Timer Adjustment / Automatic Mode

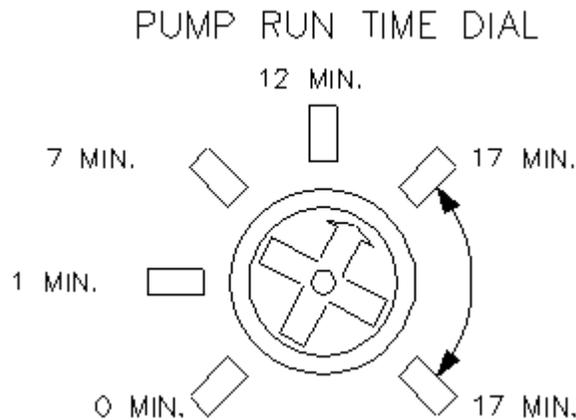
(Note: Timer Enable float must be up for automatic operation)

- a. Write down gallons from flow meter and target total gallons dose for all Zones.
- b. Place pump and Zone #1 in auto position, with all other zones “off”. Adjust timer screw setting to the approximate calculated value for total gallons per zone. Press “reset” button and hold for 5 seconds. System will automatically backflush filters and dose next zone. Start stopwatch when meter begins flow. Record the time it takes to deliver calculated volume. **Adjust timer to that actual time (not the calculated time).**
- c. Repeat for each additional zone, no adjustment should be necessary even if zone is of a different size. High or Low volume values indicate a possible leak or obstruction.
- d. Leave all zones in use switched to automatic.

The "pump run time dial" will adjust the pump run time from zero minutes to 17 minutes. This run time, when two 900 linear feet zones are in use, will dispose of 270 gpd when dosed with the "Standard Dose Enable" float switch up and 450 gpd when dosed with the "Peak Enable Float" switch up.

Use a small phillips screw driver to adjust the "pump run time dial". After adjustment, press and hold the reset button until a pump event is initiated (approx. 5 seconds). Time the pump run time after backflush to determine if the setting is adjusted where wanted. Readjust if necessary. The gallons per day can be set by first determining the gallons per minute in each zone, then the rest time between doses and then adjusting the pump run time as necessary.

NOTE: THE OWNER ASSUMES FULL RESPONSIBILITY FOR CONDITIONS OR MALFUNCTIONS DUE TO CHANGES IN PUMP RUN TIME BY ANYONE OTHER THAN A QUALIFIED SERVICE REPRESENTATIVE.



TIMER SETTING

The timer may be easily set with the use of a hand held control adapter. Customers that purchase an optional hand held unit will have the ability to view exact run timer settings as the dial is manually turned. See page 9 of this manual for instructions. The only other way to set the timer is by trial and error. Start an automatic cycle, time the field dose, and then adjust up or down to get close to desired time.

DEALER NOTES;

DATA REGISTERS AND THE HAND HELD PROGRAMMING & MONITORING UNIT

Dealers may purchase the optional hand held programming & monitoring unit (hand held unit) in order to see the timer settings and counter values as listed on the Data Monitoring Table on the next page. The device is the size of a hand held calculator and will easily fit into the standard installers service kit. The table may be copied to log in data from a specific site for a specific date and time.

The hand held unit may be plugged into or removed from the microprocessor at any time. Even in the middle of an operation the control will only divert back to automatic operation. The use of the hand held is not necessary to operate the unit. It only makes setting of the run time easier and proportioning of the run time possible. In most cases however the proportioning is not necessary and the timer settings can be tested with a stopwatch.

Data Registers - *AMERICAN PERC-RITE® DRIP*

Counters are used to provide delay time for doses and flushing sequences. Counters may be adjusted to start cycles. Different dose times for each zone may be set. Registers are field adjustable with a hand held unit only. The following table, which registers, can be viewed and adjusted.

Data Registers - *AMERICAN SINGLE TANK SANDFILTER DRIP*

There are registers available for use with a **SINGLE TANK SANDFILTER DRIP** system.

Detailed information for this system is available from American at our web site.

TO START HAND HELD

- Plug hand held unit with matching plug shape to socket
- Press "F1" for first menu (main menu may already be on screen)
Note: If you press "esc" another menu may be seen, do not operate from this menu. Press "esc" again to return to the main menu.

"Main Menu"

MAIN	DATA	VIEW	EDIT
F1	F2	F3	F4

TO CHECK TIMER AND COUNTER REGISTERS

- Press "F1" to view data - Pump and Zone Counters & ETM's
- Press "F2" to view timers and counters - Run & Rest times during operation
- Press "F3" to edit timers and counters - Operational setup values
- Press "F4" to view data - Pump and Zone Counters & ETM's for Pre treatment tank

TO EDIT (CHANGE) REGISTER VALUES

- Press edit timers and counters
- Use small phillips screwdriver (on field pump run time screw) to adjust pump run times
- Use arrows to move left flashing cursor on register that you want to change
- Press "ENTER", cursor will highlight the number of that register you want to change
- Use arrows to change value to desired number, and then press "ENTER". For screens with multiple values, press "ENTER" repeatedly until screen changes.

Note: After thirty seconds of inactive viewing of a register, the hand held will return to the top of the function register in use. After four minutes of inactivity, the hand held will return to the main menu.

Loading a Program in a S7-200 series PLC 224/226/*

1. Place Run/Term/Stop switch shown in Figure A in the stop position.
2. Remove all power from the system.
3. Remove the cover or battery from the Eprom (memory chip) housing noted in Figure A.
4. Look at the underside of the Eprom () and align it with the socket connector noted in Figure C before inserting.
5. After assuring alignment place the chip in the slot and restore power to the system (with switch still in stop position).
6. Wait 10 seconds.
7. Power the system down.
8. Remove the Eprom.
9. Replace cover or battery.
10. Restore system power.
11. Place switch in the run position.

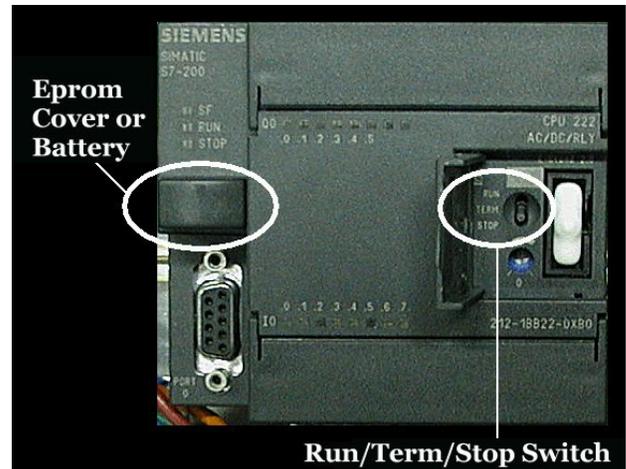


Figure A



Figure B



DATA MONITORING TABLE

NAME: _____
 Address: _____

DATE: ___/___/___
 Time: ___ : ___ AM PM

Press (F1, F2, F3, F4) at any time. Press the noted (F1, F2, F3, F4) to review and to edit the referenced registers. After thirty seconds of inactive viewing of a register, the hand held will return to the top of the function register in use. After another four minutes of inactivity, the hand held will return to the main menu. Legend: (m) minutes, (h) hours, (t) tenths of a second. All rest times are in minutes.

Scr No.	(F1) Drip Data Record	Value	Scr No.	(F2) Drip Status	Value	Scr No.	(F3) Drip Edit Record	Value	Scr No.	(F4) Edit & Record Pt = Pretreat Tank SD = Simplex Dose	Value
1	Flow Meter		1	Zone Dose Timer	1-16	1	Z1RT	1,500-11,700	1	Pt Dose Time (t)	1500-11700
2	Z01 Counter			TRGT (t)			Z1 %	100		TRGT (t)	
	Z01 ETM (m)			Elapsed (t)			Flow	12		Elapsed (t)	
3	Z02 Counter		2	Zone Rest Time			FF	25	2	Rest Std (m)	45
	Z02 ETM (m)			TRGT (t)		2	Z2 RT	1,500-11,700		Peak (m)	30
4	Z03 Counter			Elapsed (t)			Z2 %	100		Trgt (m)	
	Z03 ETM (m)		3	SF Rest Time			Flow	12		Elapsed (m)	
5	Z04 Counter			TRGT (t)			FF	25	3	P1 Counter	
	Z04 ETM (m)			Elapsed (t)		3	Z3 RT	1,500-11,700		P1 ETM (m)	
6	Z05 Counter		4	Z1FF (Ctr)			Z3 %	100	4	P2 Counter	
	Z05 ETM (m)			Z2FF (Ctr)			Flow	12		P2 ETM (m)	
7	Z06 Counter			Z3FF (Ctr)			FF	25	5	PK Counter	
	Z06 ETM (m)			Z4FF (Ctr)		4	Z4 RT	1,500-11,700		PK ETM (m)	
8	Z07 Counter		5	Z5FF (Ctr)			Z4 %	100	6	HL Counter	
	Z07 ETM (m)			Z6FF (Ctr)			Flow	12		HL ETM (m)	
9	Z08 Counter			Z7FF (Ctr)			FF	25	7	SD Dose Time TRGT (t)	1,500
	Z08 ETM (m)			Z8FF (Ctr)		5	Z5 RT	1,500-11,700		Elapsed (t)	
10	Z09 Counter		6	Z9FF (Ctr)			Z5 %	100	8	SD Rest Time TRGT (m)	1,440
	Z09 ETM (m)			Z10FF (Ctr)			Flow	12		Elapsed (m)	
11	Z10 Counter			Z11FF (Ctr)			FF	25	9	SD Counter	
	Z10 ETM (m)			Z12FF (Ctr)		6	Z6 RT	1,500-11,700		SD ETM (m)	
12	Z11 Counter		7	Z13FF (Ctr)			Z6 %	100	10	Main Menu	
	Z11 ETM (m)			Z14FF (Ctr)			Flow	12			
13	Z12 Counter			Z15FF (Ctr)			FF	25			
	Z12 ETM (m)			Z16FF (Ctr)		7	Z7 RT	1,500-11,700			
14	Z13 Counter		8	Nxt Zone to Dose			Z7 %	100			
	Z13 ETM (m)			Backflush Timer			Flow	12			
15	Z14 Counter		9	Flowmeter			FF	25			
	Z14 ETM (m)			Design Flow gpm		8	Z8 RT	1,500-11,700			
16	Z15 Counter		10	Filter	3		Z8 %	100			
	Z15 ETM (m)			Dose	1		Flow	12			
17	Z16 Counter			SF	0		FF	25			
	Z16 ETM (m)			Peak	0	9	Z9 RT	1,500-11,700			
18	P1 Counter			0=Off 1=On			Z9 %	100			
	P1 ETM (m)						Flow	12			
19	P2 Counter						FF	25			
	P2 ETM (m)					10	Z10	1,500-11,700			
20	PK Dose CTR						Z10 %	100			
	PK ETM (m)						Flow	12			
21	HL Counter						FF	25			
	HL ETM (m)					11	Z11 RT	1,500-11,700			
22	Peak Zone						Z11 %	100			
	SF						Flow	12			
23	ZO1 TTL Flow						FF	25			
	ZO2 TTL Flow					12	Z12 RT	1,500-11,700			
24	ZO3 TTL Flow						Z12 %	100			
	ZO4 TTL Flow						Flow	12			

25	ZO5 TTL Flow					FF	25			
	ZO6 TTL Flow				13	Z13 RT	1,500-11,700			
26	ZO7 TTL Flow					Z13 %	100			
	ZO8 TTL Flow					Flow	12			
27	ZO9 TTL Flow					FF	25			
	ZO10 TTL Flow				14	Z14 RT	1,500-11,700			
28	ZO11 TTL Flow					Z14 %	100			
	ZO12 TTL Flow					Flow	12			
29	ZO13 TTL Flow					FF	25			
	ZO14 TTL Flow				15	Z15 RT	1,500-11,700			
30	ZO15 TTL Flow					Z15 %	100			
	ZO16 TTL Flow					Flow	12			
31	ZO1&ZO2 Flow					FF	25			
	ZO3 & ZO4 Flow				16	Z16 RT	1,500-11,700			
32	ZO5 & ZO6 Flow					Z16 %	100			
	ZO7 & ZO8 Flow					Flow	12			
33	ZO9 & Z10 Flow					FF	25			
	Z11&Z12 Flow				17	Std Enable Rest	60			
34	Z13&Z14 Flow					Pk Enable Rest	45			
	Z15&Z16 Flow				18	SF Std off Rest	45			
35	ZO 1 FF (Ctr)					SF Std Enbl Rest	30			
	ZO 2 FF (Ctr)				19	SF Pk Enbl Rest	30			
	ZO 3 FF (Ctr)					BW Frequency	3,000			
	ZO 4 FF (Ctr)				20	Peak Dose Allow	72			
36	ZO 5 FF (Ctr)					Auto FF Time Int	336			
	ZO 6 FF (Ctr)				21	Filter Delay	450			
	ZO 7 FF (Ctr)					Press. Delay (sec)	180			
	ZO 8 FF (Ctr)				22	Flow Meter Mult.	1			
37	ZO 9 FF (Ctr)					Flow Variance %	20			
	ZO 10 FF (Ctr)					Catasrophic %	50			
	ZO 11 FF (Ctr)				23	Main Menu				
	ZO 12 FF (Ctr)									
38	ZO 13 FF (Ctr)									
	ZO 14 FF (Ctr)									
	ZO 15 FF (Ctr)									
	ZO 16 FF (Ctr)									
39	Main Menu									

**AMERICAN “PERC RITE®” DRIP SYSTEM
DATA MONITORING TABLE REFERENCE SHEET
SIEMENS MICROPROCESSOR**

(F1) DRIP DATA RECORD

1.	FLOW METER -	Cumulative flow meter reading (gallons).
2.	ZO1 COUNTER - ZO1 ETM -	Count of number of doses Zone 1 has completed. Zone 1 elapsed time meter (minutes).
3 – 17.	ZO2-16 -	Same parameters as No. 2, but for Zones 2 through 16.
18.	P1 COUNTER - P1 ETM -	Pump 1 cycle counter. Pump 1 elapsed time meter (minutes).
19.	P2 COUNTER - P2 ETM -	Pump 2 cycle counter. Pump 2 elapsed time meter (minutes).
20.	PK DOSE CTR - PK ETM (float) -	Number of system doses while in “Peak Mode”. Cumulative total time system has been in “Peak Mode” (minutes).
21.	HL COUNTER - HL ETM -	Number of High Level Alarm events. Cumulative time system has been in “High Level Mode” (minutes).
22.	PEAK ZONE (dose) - PEAK SF -	Number of minutes system dosed while in “Peak Mode” (minutes). Number of minutes SF dosed while in “Peak Mode” (minutes).
23.	ZO1 TTL FLOW - ZO2 TTL FLOW -	Zone 1 total cumulative flow (gallons). Zone 2 total cumulative flow (gallons).
24 – 30.	ZO3-16 TTL FLOW -	Total cumulative flow (gallons) for Zones 3 through 16.
31.	ZO1&ZO2 FLOW - ZO3&ZO4 FLOW -	Dual Dosing total flow for Zones 1 & 2 (gallons). Dual Dosing total flow for Zones 3 & 4 (gallons).
32.	ZO5&ZO6 FLOW - ZO7&ZO8 FLOW -	Dual Dosing total flow for Zones 5 & 6 (gallons). Dual Dosing total flow for Zones 7 & 8 (gallons).
33.	ZO9&ZO10 FLOW - ZO11&ZO12 FLOW -	Dual Dosing total flow for Zones 9 & 10 (gallons). Dual Dosing total flow for Zones 11 & 12 (gallons).
34.	ZO13&ZO14 FLOW - ZO15&ZO16 FLOW -	Dual Dosing total flow for Zones 13 & 14 (gallons). Dual Dosing total flow for Zones 15 & 16 (gallons).
35.	ZO1 FF - ZO2 FF - ZO3 FF - ZO4 FF -	Number of actual Forward Field Flush counts for Zone 1. Number of actual Forward Field Flush counts for Zone 2. Number of actual Forward Field Flush counts for Zone 3. Number of actual Forward Field Flush counts for Zone 4.
36 – 38.	ZO5-16 FF -	Number of actual Forward Field Flush counts for Zones 5 to16.
39.	MAIN MENU -	Takes you back to main menu.

(F2) VIEW DRIP STATUS

- | | | |
|--------|--|---|
| 1. | ZONE DOSE
TARGET -
ELAPSED - | Current/next zone to dose
Set Run Time for Current Zone (tenths of second)
Elapsed Run Time for current dose (tenths of second). |
| 2. | ZONE REST TIME
TARGET -
ELAPSED - | Set rest time between zone doses (minutes).
Current elapsed rest time (minutes). |
| 3. | SF REST TIME
TARGET -
ELAPSED - | Set rest time between sand filter doses (minutes).
Current elapsed rest time (minutes). |
| 4. | Z1 FF -

Z2 FF -
Z3 FF -
Z4 FF - | Number of zone cycles counting upwards to set number (typ. 25 from F3 setting) when Forward Field Flush event will occur. When Forward Field Flush event occurs for this zone counter will reset to zero.
Same as above.
Same as above.
Same as above. |
| 5 – 7. | Z5-16 55 - | Same for zones 5 through 16. |
| 8. | NXT ZONE TO DOSE -
BACKFLUSH TIMER - | Next zone scheduled to dose.
Set time to backflush disc filters (tenths of second). |
| 9. | FLOWMETER -
DESIGN FLOW - | Continually updated flow meter reading during current dose.
Set design flow for current dose (gpm). |
| 10. | DOSE -
S.F. -
PEAK - | 1 = single Zone Dosing. 2 = dual zone dosing.
1 = sand filter option ON . 0 = sand filter option OFF.
1 = System in “Peak Mode”. 2 = System not in “Peak Mode”. |

Timer Screws

- 0 – Drip Zones**
- 1 – Sand Filter**

(F3) DRIP EDIT RECORD (edit settings)

- | | | |
|--------|---|--|
| 1. | Z1 RT -
Z1 % -
FLOW -
FF - | Zone 1 run time (1,500 - 11,700 tenths of second)
Percent of run time set by manual dial timer.
Set flow reading (gpm)
Number of zone doses before a Forward Field Flush event will occur. |
| 2 –16. | Z2-16 - | Same parameters as above for zones 2 through 16. |
| 17. | STD ENABLE REST -

PK ENABLE REST - | Standard rest time between zone dose events when in Dose Enable mode (minutes).
Rest time between zone dose events when in “Peak” mode (minutes). |
| 18. | SF STD OFF REST -

SF STD ENBL REST - | Rest time between sand filter dose events when only “Off” float is activated (minutes).
Rest time between sf dose events when in “Peak” mode (minutes). |
| 19. | SF PK ENBL REST -

BW FREQUENCY - | Rest time between sf dose events when in “Peak” mode (minutes).
Amount of time between mid dose auto back flushes (tenths of second). |
| 20. | PEAK DOSE ALLOW -

AUTO FF TIME INT - | 72 hours is the maximum consecutive length of time system will dose using the “Peak” dosing frequency.
336 hours (14 days). Zones will Forward Field Flush once every 14 days or 25 cycles which ever is the lesser number. |
| 21. | FM MULTIPLIER -
PRESSURE DELAY - | 1 (preset).
1800 tenths of second (3 minutes) before taking flow reading (gpm) if Flow Monitoring is activated (“On” position). |
| 22. | FLOW VARIANCE% - | Preset at 20% if Flow Monitoring is turned on. |
| | CATASTROPHIC% - | Preset at 50% if Flow Monitoring is turned on. |
| 23. | MAIN MENU - | Returns back to Main Menu. |

Timer Screws

0 – Drip Zones

1 – Sand Filter

(F4)EDIT & RECORD

Pt = Pretreatment Tank

SD = Simplex Dose (i.e. Clarifier sludge return, etc.)

- 1. PT. DOSE TIME -
 - TRGT (t) - 1500-11700 tenths of second -- Run time for Pretreat Pump dose
 - Elapsed (t) - Starts at 0 and counts out time as pump times out Run Time
- 2. Rest Std. (m) - Standard Rest time (minutes) for Pretreatment pumps
- Peak (m) - Rest time for Pretreatment Pumps in Peak Mode (Peak float activated)
- Trgt (m) - Rest time (minutes) for given current mode (std or peak)
- Elapsed - Total current elapsed rest time (minutes)
- 3. P1 Counter - Pretreatment Pump 1 cycle counter
- P1 ETM - Pretreatment Pump 1 elapsed time meter (minutes)
- 4. P2 Counter - Pretreatment Pump 1 cycle counter
- P2 ETM - Pretreatment Pump 1 elapsed time meter (minutes)
- 5. PK Counter - No of Peak Events
- PK ETM (m) - Cumulative Total time system has been in "Peak Mode" (minutes)
- 6. HL Counter - Number of High Level Alarm Events
- HL ETM (m) - Cumulative Total time system has been in "High Level Mode" (minutes)
- 7. SD Dose Time TRGT (t) - Enter Simplex Dose system run time (tenths of second)
- Elapsed (t) - Starts at 0 and counts out time as pump times out Run Time
- 8. SD Rest Time TRGT (m) - Enter standard rest time for Simplex Dose system
- Elapsed - Total current elapsed rest time (minutes)
- 9. SD Counter - Simplex Dose pump cycle counter
- SD ETM (m) - Simplex Dose pump elapsed time meter (minutes)
- 10. HL Counter - Number of High Level Alarm Events in Simplex Dose system
- HL ETM (m) - Cumulative Total time system has been in "High Level Mode" (minutes)

MAIN MENU

INSPECTION AND OPERATION PROCEDURE ONSITE DRIP DISPERSAL SYSTEM

NAME: _____ DATE: ____/____/____
Address: _____ Time: ____ : ____ AM PM

I. Monitoring Schedule Frequency

- A. Periodic Inspection _____
- B. Compile and review (submit) data _____

II. Periodic Inspection

- A. Field Conditions
 - 1. Walk the field and record any visible wet spots from the drip system.
 - 2. O.K. ___ Repair ___ Comments and remedial action _____
- B. Controller
 - 1. Lights and manual switch positions.
 - a. Open the control panel and open the lid to the hydraulic unit and pump tank. Make sure all manual switches are in the automatic position. With Microprocessor on, verify power light and run lights are on.
 - b. O.K. ___ Comments and remedial action _____
 - 2. Microprocessor input: See table in owner's manual.
 - a. O.K. ___ Comments and remedial action _____
 - 3. Microprocessor output: Verify there is output only when in automatic operation. You may start automatic cycle with "Reset/Stop" button.
 - a. O.K. ___ Comments and remedial action _____
- C. Pump Tank Liquid Level Float Switches
 - 1. Check liquid level in the pump tank to confirm switch operation.
 - a. If a float is down, its light should be off. Note; High level alarm float requires optional relay installed in control.
 - 2. O.K. ___ Comments and remedial action _____
- D. Pump and Valve Operation
 - 1. Place pump "Hand-Off-Auto" switch in the "Hand" position to deadhead pump against valves. Then open (optional) master valve. Flow meter should not turn indicating there are no leaks.
 - 2. O.K. ___ Comments and remedial action _____
 - 3. With the pump running, place each zone valve in the "Hand" (open) position one at a time to check operation. With one zone valve open, flow should register on the flow meter. When the zone valve closes (off position), the flow should stop.
 - 4. O.K. ___ Comments and remedial action _____
 - 5. With one zone valve open and flowing, close and reopen (optional) master valve to check operation.
 - 6. O.K. ___ Comments and remedial action _____
 - 7. With the pump in the "Hand" position open the filter backwash valve for filter one and two for ten seconds then close. There should be no flow registering in the flow meter and you should hear the valves open and close. The backwash return valve diaphragm will rise then lower during backflush.
 - 8. O.K. ___ Comments and remedial action _____
 - 9. Return all switches to the automatic position.

E.. Hydraulic Unit

1. Examine one filter and clean all filters as needed.
2. Examine all hydraulic components for leaks, tubing crimps and other problems.
3. O.K. ___ Comments and remedial action _____

III. Annual Inspections (Includes Periodic Inspection)

A. Extended Check - Zone Dose Rates

1. Open the air release valve boxes and inspect. Make sure they close during the dose with no water leak after air is evacuated.
2. O.K. ___ Comments and remedial action _____
3. Determine how many zones are in operation and the installed flow rates from the installation records.
4. O.K. ___ Comments and remedial action _____
5. With the pump in the "Hand" position, select the first zone by placing the zone valve switch in the "Hand" position. After pressurization time, check flow rates by reading the flow meter for a timed minute. Repeat for all zones. If flow varies by more than 10% from original flow rates, reset flow rates.
6. O.K. ___ Comments and remedial action _____
7. After the final zone is checked, place the "Zone Return" valve in the "Hand" position while the "Zone Valve" is still in the "Hand" position and verify that the flow rate increased to provide field flushing.
8. O.K. ___ Comments and remedial action _____
9. Return appropriate switches to the automatic position.
10. O.K. ___ Comments and remedial action _____
11. Press reset button for 5 seconds and check automatic zone dosing time.
12. O.K. ___ Comments and remedial action _____

B. Tanks & Pumps

1. Examine and clean effluent screens, filters, and floats as needed.
2. O.K. ___ Comments and remedial action _____

C. Measure solids level in all tanks

- | | | |
|----------------------------|------------------|--------------------|
| 1. Septic tank | Tank Depth _____ | Sludge Depth _____ |
| 2. Settling Tank | Tank Depth _____ | Sludge Depth _____ |
| 3. Dose Tank | Tank Depth _____ | Sludge Depth _____ |
| a. Sludge pumping required | Yes ___ | No ___ |

IV. Reporting

- A. Provide summary report to customer showing gallon flow to each field along with pertinent operating information and suggestions.
- B. Provide signed and dated inspection report to customer file and regulatory agency as needed.
- C. Have records available and be prepared to discuss operation and maintenance specifics with customer personnel.

V. Operator Signature _____ **Date:** _____

Perc Rite® Dealers are authorized to reproduce forms in this manual as needed for each site. Additional comments (use back of copy if necessary):

Order Information

AMERICAN MANUFACTURING COMPANY INC.
5517 WELLINGTON ROAD, GAINESVILLE, VA. 20155
1-800-345-3132 Fax: 1-703-754-0058
e-mail: sales@americanonsite.com web: www.americanonsite.com

**US MAIL: P.O. BOX 549
MANASSAS, VA. 20108-0549**

FREIGHT TERMS

All materials shipped f.o.b. Gainesville, Virginia, via UPS or common carrier. Please consult factory for freight allowances.

TERMS OF PAYMENT

With an approved credit account, terms are 2% 10 days, net 30 days from date of invoice. A 2% service charge will be applied to all past due invoices. Customer agrees to pay all reasonable collection fees incurred by American Manufacturing. All other orders will be shipped C.O.D. Deposits on some special orders may be required.

PRODUCT CHANGES

American reserves the right to change prices and modify or redesign any product without notice.

ERRORS AND CLAIMS

All shipping errors must be reported within 10 days. American Manufacturing will not be responsible for damages, shortages or delays caused by shipping delays. Claims which are the responsibility of American will be expedited immediately, but are limited to credit on or replacement of merchandise involved.

AMERICAN MANUFACTURING LIMITED WARRANTY

For one year (12 months) after date of purchase, American Manufacturing 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:

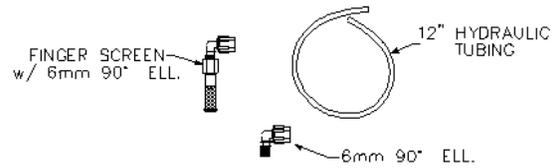
1. Defects or problems caused by improper installation or maintenance of materials.
2. Abuse, neglect or accidental damage of products.
3. Normal maintenance or upkeep of products.
4. Lightning, war, floods, or other acts beyond our control.
5. Misapplication of our products for their designed purpose,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

Defective or warranted items must be returned to American or a location designated by AMC. All returns must be accompanied by a return goods authorization number (RGA) supplied by American.

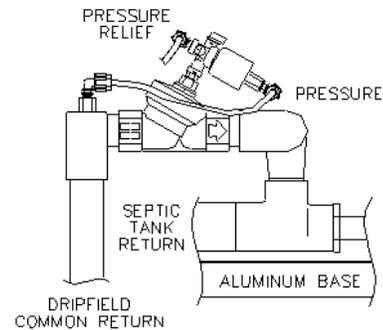
Manufacturing will in no way be responsible for any losses or damages incurred by failure of equipment, parts or service. NOTE: Some states do not allow exclusion of damages, so this may not apply to you.

There are no other warranties written or implied.

OPTIONAL - RETURN PRESSURE ASSEMBLY FOR ZONE RETURN CONTROL VALVE



In the event the drip zones are over 10 feet in vertical elevation above the hydraulic unit, install a “return pressure assembly”. The assembly is to be used to prevent the return line from draining after or during each dose. Remove the zone return connection and reinstall a short 1” nipple in the return valve. Install assembly as shown to the right. The hydraulic tubing providing pressure for the rest of the unit must be plugged and the new tubing from the assembly connected to the pressure side of the solenoid.



RETURN PRESSURE ASSEMBLY
NTS

OPTIONAL SETUPS FOR THE PERC-RITE® DRIP SYSTEM

FLOW MONITORING FOR PERC-RITE®

Flow monitoring is an operational option, which measures the flow rate and compares it to a preset input value. If the flow is more than 20% plus or minus from this value, an alarm will engage. If the flow is over 50% from the preset value the system will assume a catastrophic failure is sensed and the system will shut down. Press reset button to reset system.

When the Flow monitoring option is **NOT** in use, the input number 1.5 must not be lit. Some controls are provided with a selector switch, which may be turned to the off position to take out this input. Also, the pressurization delay in the “F3” menu, 21st screen may be increased to a value larger than the run time to eliminate alarms.

PUMP FAILURE FOR PERC-RITE®

There is a current sensor relay that one of the leads from the pump contactor is routed through to sense current. In the event no current is sensed when a pump is supposed to be running, the pumps will alternate and then stop running if no current is sensed. The terminals may be jumped on this switch to eliminate alarms when using the control for pilot duty only.

DIFFERENTIAL PRESSURE BACKWASH FOR PERC-RITE®

There is a function based on input to number 1.7, which will send the control into an automatic backwash. A filter battery with a differential pressure switch connected to terminal block 2 numbers 13 and 14 will do an automatic back flush of the filters when the pressure between the inlet manifold and the outlet manifold exceeds the switch setting and the condition is sensed by the control panel.

DOSE CUTOUT FOR PERC-RITE®

Some controls are provided with a dose cut out based on an input to number 0.0. If input 0.0 is lit for a selected period of time the unit will not run. To eliminate the condition, remove the input and press the rest button.

HIGH LEVEL DOSE CUTOUT FOR COMBINATION PRETREATMENT AND PERC-RITE®

The control may be provided with a pretreatment time dose function with duplex time dosed pumps to any primary process and duplex pumps for the final drip dose tank. In the event the drip dose tank is in the high-level alarm condition, the primary process pumps will be locked out to not overfill the drip dose tank.

AMERICAN MANUFACTURING COMPANY, INC.

INNOVATIVE TECHNOLOGY FOR THE ENVIRONMENTAL AGE

CATALOG PRODUCTS

American Manufacturing Company, Inc. manufactures many specialty On-Site Wastewater products including the Bull Run^R Valve, Dial-A-FlowTM, Distribution Boxes, accessories and Controls. American also supplies as an Original Equipment Manufacturer (OEM) many other products unique to the On-Site Industry.

The American On-Site Products Catalog is used throughout the industry not only for purchasing but for reference and education. If an individual desires a product not shown in the catalog, a toll free call to our 800 number will normally result in getting information about the desired product.

CONTROLS

American Manufacturing becomes involved with the entire operation of the system whether potable water, process water, or wastewater. American has staff Professional Engineers, designers, soil scientists, and trained sales people with state-of-the-art experience in control systems.

Our objective is to provide the most practical, economical, and efficient control device for fluid handling. We inventory many standard application controls and are able to manufacture special application panels in a very timely manner due to our modular design and manufacturing methods.

PACKAGES

American Manufacturing Company, Inc. manufactures many specialty On-Site Wastewater system packages including Recirculation Sand Filter components, pump station equipment, and State-Of-The-Art American “**PERC-RITE[®]**” *Drip* units incorporating automatic field flushing, disc filter back flushing, and pressure compensating emitters.

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DEALER NOTES;