SlimDial
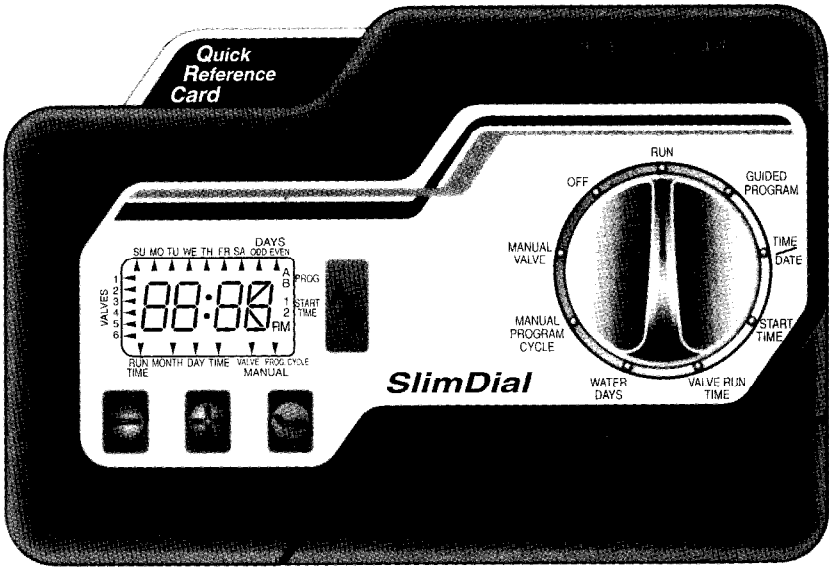
Operator's Manual

6 VALVE INDOOR CONTROLLER

James Hardie
Irrigation

1. Introduction What is a Watering Cycle?

Each watering cycle opens and closes all the valves assigned to a program, in sequence, starting with the lowest valve number. For example, in the sample watering plan shown, program A has two start times which initiate two watering cycles. All four valves in the program water in sequence, two times each day, once at 7:00am and once at 5:00pm. This controller is designed to operate up to six valves. It can be set to start two watering cycles per program. Each of the two programs are completely independent of each other giving you the freedom to include any combination of valves in each program and the ability to select different watering days and start times for each program. After programming, write your watering plan in pencil on the back of the programming reference card, located in the controller pull-out pocket. For the days you have selected in programs A and B, each programmed start time turns on each selected valve in sequence, from the lowest valve number to the highest valve number.
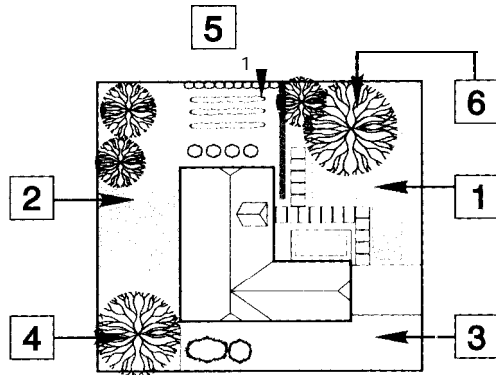

Sample Watering Plan

Program	Days	Water Start Times	Valves	Valve Run Time Duration
A	Su, Tu, Th, Fr	(#1) 7:00am	1, 2, 3, 5	10 minutes (1, 3, 5) 15 minutes (2)
		(#2) 5:00pm	Same as above	Same as above
B	Odd Days	(#1) 5:00am	4,5,6	10 minutes each (4,5,6)

II. Guided Programming *(Optional)*

In guided programming, the controller display prompts you to enter data for items by flashing the appropriate ▲. It automatically prompts you to supply information about the current time and date, program start time(s), valve run time(s) and watering days for program A and program B. After all items are entered, an "OK" will be flashed five times to verify programming is complete. If you have not entered the required data during the guided programming session, the controller will flash the message "- - - -", and prompt you for the missing data. The purpose of guided programming is to allow you to enter a program without this manual.
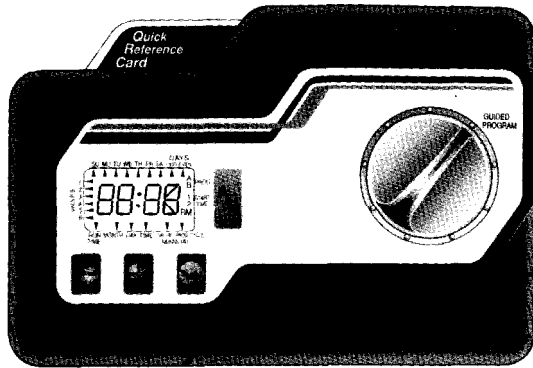
To begin, set dial to GUIDED PROGRAM. This will lead you through five easy steps. Use the + and - buttons to increase or decrease times. Use the ↳ button to enter your selection and to advance to the next step. After setting the time and date, program **A** (or **B)** will flash. You will be prompted to complete program **A.** If required, you may continue with program **B** by pressing the A/B button. After the final programming step, the controller will flash **"OK".** You will then be prompted to set-up the other program, B (or A), if desired. After all desired programming is done, set dial to RUN position to begin automatic operation.

Hint: Plug in 9 volt alkaline battery to allow progromming at your kitchen table. Mount the controller after programming by battery.

Guided Programming Steps

1. TIME/DATE Enter the year, the month, the date and the time. This will set the controller's internal timing. Use + and - buttons to increase or decrease values and the ↳ button to go to the next step.

2. PROGRAM A or B. Select either program A or B. Press the **A/B** button to select. Press the ↳ button to go to the next step.

3. START TIME. Enter the program watering start time(s). Each program can hove up to two start times. (Two start times allow watering twice a day.)

4. VALVE RUN TIME. Enter the length of time that each valve is to run. You may select a few minutes for a light sprinkling, or you may set the valve to remain open for up to four hours for applications such as drip. (The valve is off when the run time is set to zero minutes and the display shows "OFF"). Press + or - buttons to increase or decrease the minutes of run time per valve. Press the ↳ button to go to the next valve or to the next step.

5. WATER DAYS. Enter which days should be watering days. You may select particular days of the week, all odd days or all even days. Press the + button to turn days on and the - button to turn days off. Press the ↳ button to go to the next day or to the next step.

Return the dial to the RUN position after you have completed programming

Note: Programs *A* and **B**- Each *program is* simply a set of *instructions that* direct which valves to run *for how long* and on which days , **If** you need four start times or extra long watering times, you will need to use both programs. However, in most roses *one* program will be sufficient.

III. **Dial** Programming

Use dial programming to set all elements of your program without the help of guided programming or to simply review and update existing program information.

Setting Time and Date

I. Set the dial to the TIME/DATE position.

2. **Year:** Use the + and - buttons to change the year.

3. **Month:** Press the ↳ button to set the month. Use the + and - buttons to change the month.

4. **Day:** Press the ↳ button to set the day of the month. Use the + and - buttons to change the day of the month. The day of the week (e.g. Sunday, Tuesday, etc.) is automatically indicated by the ▲ pointing to the correct day.

5. **Time:** Press the ↳ button to set the time. The hour, minute, and AM or PM will flash. Use the + and - buttons to change the time shown on the display. (Continuous pressure on the button longer than 3 seconds causes rapid change.)

Selecting Program Start Times

Each program has two start times available. You may use the second start time to water more than once per day.

1. Set the dial to the START TIME position.

2. Select program A or B by pressing the A/B button.

3. Use the + and - buttons to change the start time. (Continuous pressure on the button, longer than 3 seconds, causes rapid change.)

4. Press the ➥ button to select the next start time.
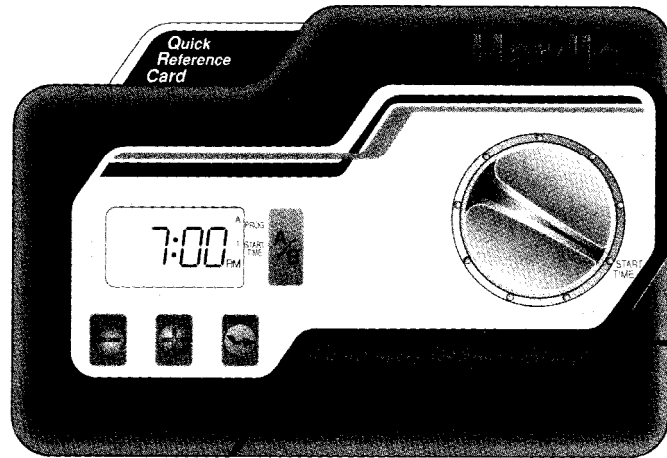
Canceling a Program Start Time

1. With the dial set to the START TIME position, use the + and - buttons to set the start time to Off, (which is between the times of 11:59pm and 12:00am). (E.g. 11:58pm... 11:59pm... OFF... 12:00am... 12:0l am...). To accomplish this, you can go forward or backward in time.

2. If a program has both start times turned off, then that program is Off. (All other program details are retained). Because there are no start times, there will be no watering with that program. This is a convenient way to stop one program without turning the dial to the OFF position. You may need the other program to water.

Setting Valve Run Times

Follow the steps below to program how long each valve will water.

1. Set the dial to the VALVE RUN TIME position.

2. Select program A or B.

3. The display will flash the valve number , the run time for that valve, and will show the program letter selected (A or B)

4. Use the + and - buttons to change the time shown on the display. (Continuous pressure on the button, longer than 3 seconds, causes rapid change.)

5. Press the ➥ button to advance to the next valve.

6. Repeat steps 4 and 5 for each valve.

7. You may set valve run times from zero minutes to four hours.
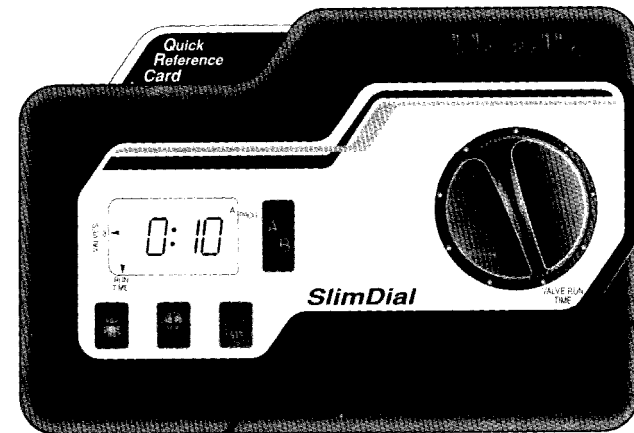
Selecting Days to Water

1. Set the dial to WATER DAYS.

2. Select program A or B.

3. The controller displays currently programmed day information. This dial positron provides three different water day options specific days of the week, odd days, or even days.

Selecting Specific Days of the Week

1. Press the + button to turn on a particular day of the week to water. Press the - button to turn watering off that day.

2. Press the ➥ button to advance to the next day of the week.

3. Repeat steps l and 2 until all desired days have been selected. The selected days ▲'s will show at the top of the display to indicate their status as ON.
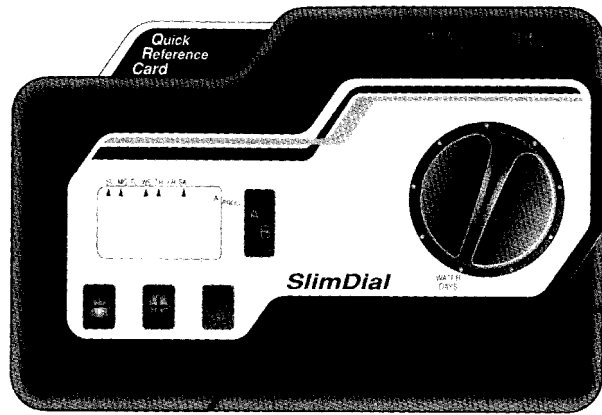
Selecting Odd or Even Days

1. Press the ↘ button for **Odd Days** and once again for **Even Days.** The ▲ will flash under your choice.

2. Press the + button to select or the - button to cancel either Odd Days or Even Days. The previously selected days of the week will revert to active **if Odd Days or Even Days** is canceled.

Note: The *31st of any month and the 29th of February of a leap year, are always treated* *as* **Off days in Odd Days watering.**

Run

After programming, set dial to RUN to enable automatic execution of all selected programs and start times.


Ten Second Valve Delay

Note: During *operation you will notice a 10 second delay between the time a valve shuts off and the next valve opens. This is to prevent water pressure damage to your system.*

Off

Use this dial position to turn off watering, such as when it is raining or you don't want watering. As long as the dial is in the OFF position, watering programs will not be activated automatically. The OFF position is also used to terminate all running program A and B watering cycles, whether manual or automatic.

1. Set the dial to the OFF position. Valves currently watering will be turned off after dial is in **OFF** position for at least two seconds. All active programs are discontinued and watering is stopped.

2. To return controller to normal automatic operation, simply return dial to **RUN** position.
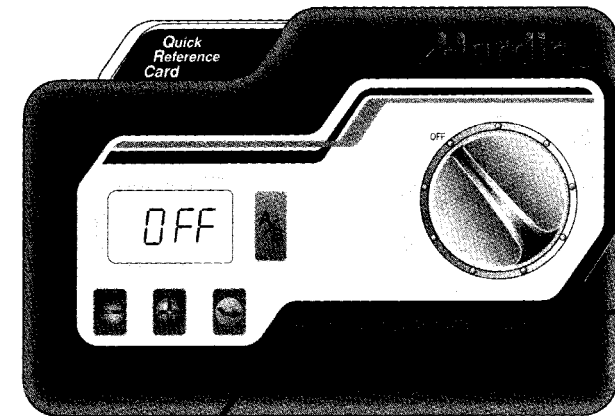
Warning: *In warm weather you may experience landscape damage* **if** *the dial is left unintentionally in the OFF position for extended periods of time. Always return the dial to* **RUN** *posifion if automatic operation is desired.*

Program Review

You can review the contents of programs A and B by setting the dial to **OFF** position and then pressing the ↘ button. The display will first show you the contents of program A including which start times are activated, which valves are activated, and which watering days are activated. Each active element will have a ▲ or a number illuminated. By pressing the ↘ button again you will see the active elements of program B. Always remember to set the dial to **RUN** position to return to automatic operation.

IV. Manual Operation

Manual Program Cycle

Use this feature to manually start a program. For example, this can be used to start a program an extra time on a particularly hot day.
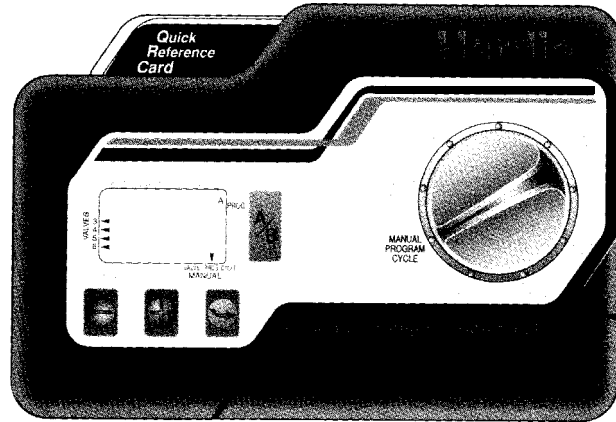
1. Set the dial to the **MANUAL PROGRAM CYCLE** position.

2. Select program **A** or **B**

3. Press the + button to select manual program cycle

4. Press the ⮡ button until the desired starting valve is displayed. That valve and all subsequent valves in the selected program will water in sequence.

5. Return the dial to the **RUN** position to begin the manual watering cycle. Display shows **MANUAL PROGRAM CYCLE** ⬆, program **A** or **B,** valve number ⬆, and counts down the run time for each active valve.

6. Turn the dial to the **OFF** position for longer than 2 seconds to discontinue the manual program cycle. (Always return dial to **RUN** position to enable automatic operation.)

Manual Valve

Use this feature to start one or more valves watering sequentially for a selected period of time.

To Select Valves for Timed Manual

1. Set the dial to the *MANUAL VALVE* position.

2. The valve 1 ⬆ will flash. You may use the + and - buttons to select the amount of time for valve 1 to water or you may skip to the next valve by pressing the ⮡ button.

3. Select the valves to water and their watering duration by repeating step 2 for the remaining valves.

4. Set the dial to the **RUN** position. Valves will water sequentially for the set time with the operating valve's ⬆ blinking during its manual watering operation.

5. Turn the dial to **OFF** position for longer than 2 seconds to discontinue the manual valve program. (Always return dial to **RUN** position to enable automatic operation).
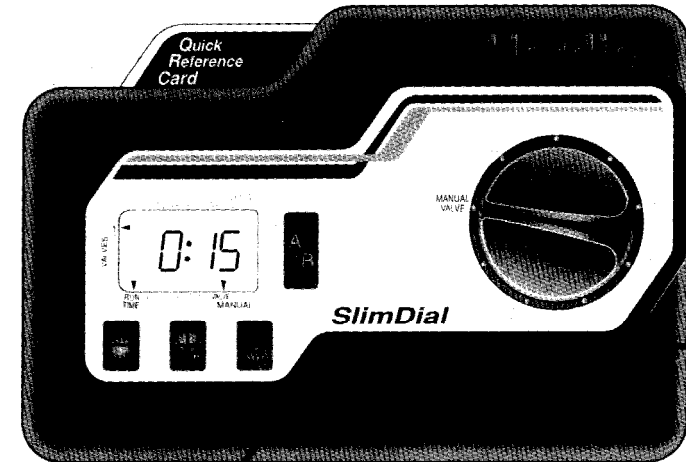
NOTE: You may advance through a running cycle by pressing the ⮡ button to skip any undesired valve(s). (This is handy during system testing.)

V. Installation

Selecting an Installation Site

Install the controller with the display at eye level. If you will be using a pump, the controller must be mounted at least 15 feet (4.5m) away from your pump start relay and pump. Do not plug the controller into any power circuit serving a refrigerator, a pump or an air conditioner.

WARNING: This controller is designed for indoor installation only. Installing this controller outdoors will void the warranty and may result in an electric shock hazard.
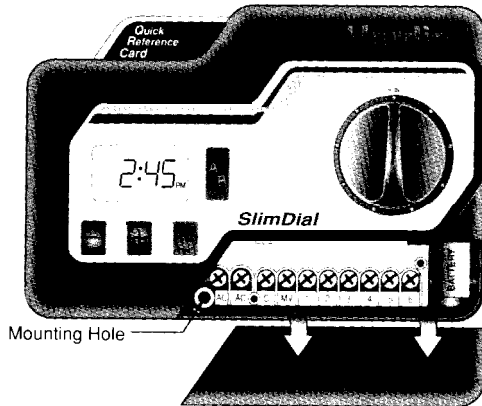
Mounting the Controller

To mount the controller use the mounting template sheet included or the following instructions.

1. Determine mounting height and center position. From this location mark a point 3 1/2" (89 mm) to the right and 3 1/2" (89mm) to the left. Drive a screw into the wall at each point leaving approximately 1/2" (13mm) of the screw exposed. (Pre-drill holes for these screws to make the iob easier.) Hang the controller on the two exposed screw heads.

2. To secure the controller, remove door and drive the third screw through the bottom mounting hole in the controller. (Pre-drill a hole for the securing screw as you did for the first two screws.)

Do not plug transformer into power source until the controller is mounted and ALL valves have been connected.

3. If you have not already done so, connect a 9-volt alkaline battery to battery clip. DO NOT use a rechargeable battery The display will Illuminate under normal conditions. If any unexpected display characters show, simply disconnect and reconnect the battery. After a few minutes the display will go blank under battery power. Turn dial to illuminate display. The battery is designed as a memory retention feature only. Valves will only operate with power supplied by the transformer

Mounting Hole

## Connecting the Valves & Transformer

DO NOT try to connect the controller directly to an outlet. This WILL destroy the controller and may result in electric shock or fire hazard. Please use only single strand multi-colored irrigation wire for your installation.

1. Connect the transformer wires to the two screws marked AC. Do not plug in transformer until after all valves have been connected.

2. Connect valve #l wire to screw marked 1 and the "valve common" wire to main common wire which feeds back to the controller. Typically, you will have all of your valves grouped together. From this valve group you will send your multi-colored wire bundle back to the controller. Then, the single common wire is connected to the common terminal screw marked C. (See diagram.) In some cases, you may have more than one common wire. One from the front yard and one from the back yard. All commons get connected to the terminal screw marked C. If a number of commons are required, you may need to use a "wire nut" to combine these commons together with a lead wire. The single lead wire is then connected to the common terminal screw marked C. Back screw out until head is 1/8" above plastic partition. Bend bare copper wire in clockwise hook (only expose I/2" of bare copper trom end ot wire to reduce short circultlng of two adjacent wires). Slip wire hook under screw head and tighten screw until wire is secure.

3. Repeat step 2 for all valves.

WARNING: Make sure the power transformer is unplugged while making connections to any station terminal or the master valve/pump terminal.
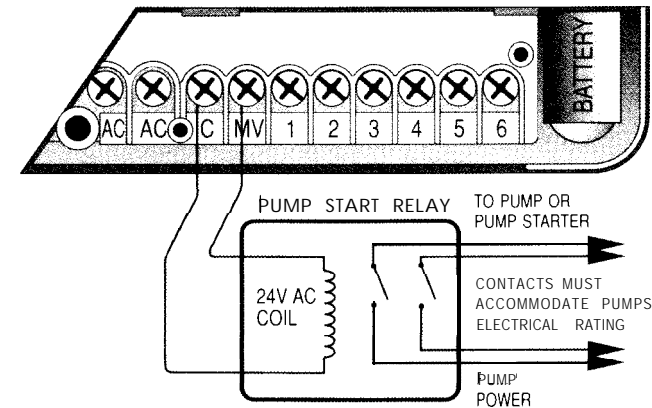
WARNING:

A maximum load of 6 VA (which is equivalent to one Hardie or Richdel valve) may be connected to each numbered valve terminal. A maximum load of 12 VA may operate simultaneously (i.e. one valve at a time in addition to the master valve or pump start relay).
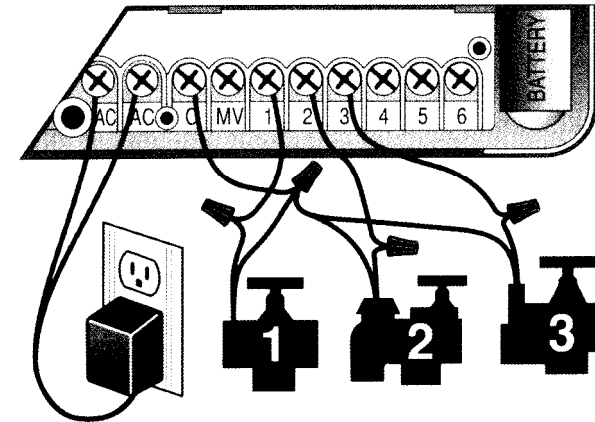
## Connecting a Pump Start Relay

The controller must be mounted at least 15 feet (4.5m) away from both the pump start relay and the pump. When a pump is to be operated by the controller, a pump start relay must be used. The relay coil should be connected to the master valve output terminal marked MV and the common terminal C at the controller. The relay coil must be rated for 24 VAC at 250 mA maximum. The relay contacts will be connected to the pump start terminals and must be rated for use with your particular pump. (See diagram). In addition, a high pressure relief mechanism is recommended. See your pump dealer for more information.

PUMP START RELAY   TO PUMP OR PUMP STARTER

24V AC COIL

CONTACTS MUST ACCOMMODATE PUMPS ELECTRICAL RATING

PUMP POWER

Master Valve/Pump Start

The Master Valve/Pump Start will operate whenever any valve is on. This allows a pump to draw water from a well or other source, or opens the master valve whenever watering occurs. The practice of using a pump is common in some areas and rare in others. (If you do not have a pump start or master valve installed, you will not notice this feature.)

WARNING: If a pump start relay is installed you must use a jumper wire from each unused terminal screw to a numbered terminal screw in use. This is *critical to avoid* damaging your pump, *running it dry,* which may burn out the pump motor.) Neglecting to jumper *all unused terminal screws may* damage your pump during default program execution. *program execution.*

Jumpers
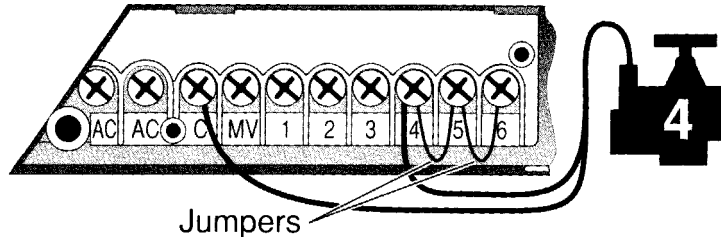
DO NOT connect the master valve terminal directly to the pump terminals. This WILL damage the controller.

Wiring Skirt/Conduit Adapter

The Wiring Skirt/Conduit Adapter is used to hide all of the valve wires. You may run your valve wires up the wall inside 3/4" PVC pipe and then fit the Wiring Skirt/Conduit Adapter over your wires and attach to the wall with the two screws included.

Wiring Skirt/
Conduit Adaptor

Mounting
Holes

3/4" PVC Pipe

Wires from
valves
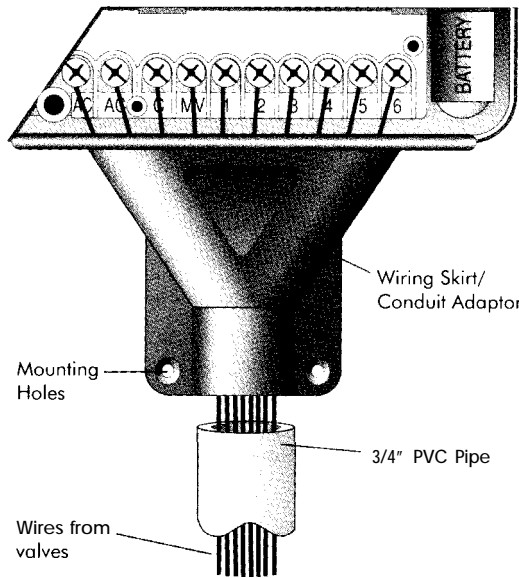
Power failures

Due to the possibility of power failures, the controller has a factory-set safety default program which assures watering even if your programs have been lost due to a discharged or missing back-up battery. The default program is set to run all six valves for ten minutes each, every day of the week. The default is factory set in Program **A.**

Note: You may change Program A fo suit your *needs without affecting the default. you may change all the programs to suit your specific needs, without effecting the* factory default values. There is *no factory* default required *for program* B.

Note: This controller is only intended *for use in an* automatic irrigation system.

Circuit Breaker

This controller is equipped with a circuit breaker that automatically protects the controller if a short circuit occurs. **With a back-up battery in use,** If the controller indicates that valves are running but no watering is taking place, a short circuit might exist in either the wiring or the valves. With no back-up battery in use (or a discharged battery), the controller will react as though it has experienced a power failure every day. The controller circuit breaker will protect the controller by shutting off all operations and resetting to factory defaults.

To diagnose and resolve a short circuit follow the steps below:

1. Unplug the transformer and battery, and wait one minute.

2. Now plug in the transformer but not the battery.

3. Set the controller dial to **MANUAL VALVE** position.

4. Set each valve to 1 minute of run time.

5. Return the dial to **RUN** position.

6. Watch the display as each valve completes its run time.

7. Normally, only one valve will be faulty. Soon after the faulty valve's 10 second delay, the controller display will go blank. (See page 6 which discusses 10 second delay.)

8. The valve that causes the display to go blank is faulty. Typically, either the wiring to this valve or the solenoid for this valve has a short circuit

9. Disconnect the wire to this valve at the controller terminal screw and confirm that without this valve your system is working properly. Repeat steps 1 through 6 to confirm that the display does not go blank with any other valves. (If using a pump, you must jumper any unused controller terminal screws to a terminal screw that is functioning properly. See page 12 which discusses the use of a jumper).

10 Notify your irrigation professional to complete repairs, If necessary.

11 After repairs are completed reconnect battery and reset programs and time.

Technical Assistance

For additional assistance, call our Customer Service Hot-line at I-800-231-5117.

FCC

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been verified to comply with the limits for a class B computing device, pursuant to FCC rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

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