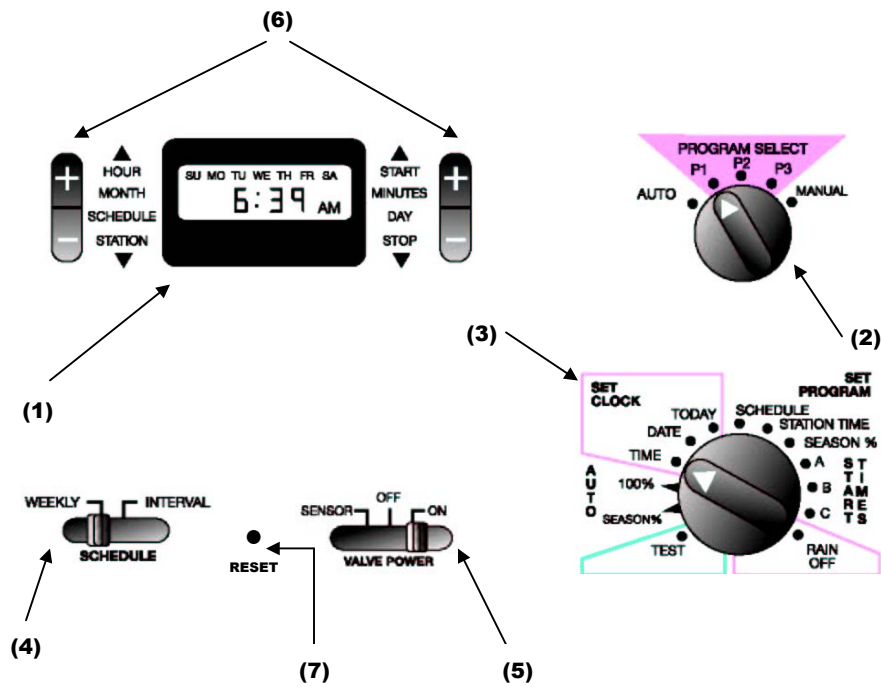


# LM and LMC CONTROL PANEL

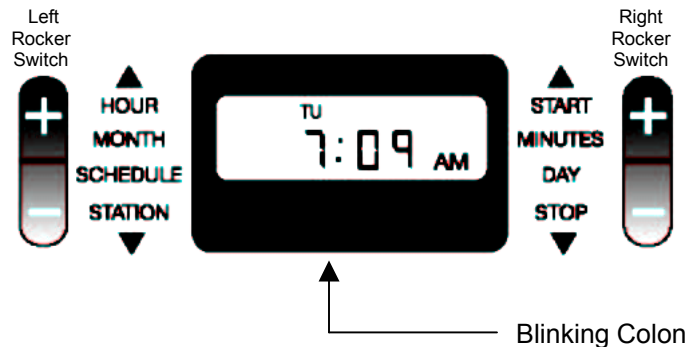


- (1) LIQUID CRYSTAL DISPLAY (LCD)
- (2) TOP DIAL
- (3) BOTTOM DIAL
- (4) SCHEDULE SWITCH
- (5) VALVE POWER SWITCH
- (6) LEFT AND RIGHT ROCKER SWITCHES
- (7) RESET SWITCH

## OPERATING CONTROLS

### [1] LIQUID CRYSTAL DISPLAY (LCD)

The LCD displays necessary data during programming steps and watering operations. When controller is in the STANDBY MODE (controller is not watering nor being programmed and BOTTOM DIAL is in the "AUTO" position), the LCD will show "day of the week" and "time of day" with a "blinking colon" as illustrated below. The "blinking colon" confirms that the controller is operating normally and that the BOTTOM DIAL is in the "AUTO" position ready for automatic watering.



Additional LCD configurations will be shown later in these instructions.

### [2] TOP DIAL

Used for selecting P1, P2, P3 for setting program or SEMI-AUTOMATIC starts. Also used for MANUAL operation.

### [3] BOTTOM DIAL

Used to select programming functions and to set controller for automatic watering. When not setting program, BOTTOM KNOB must be left in one of the two "AUTO" positions for AUTOMATIC, SEMI-AUTOMATIC, or MANUAL watering.

### [4] SCHEDULE SWITCH:

Selects WEEKLY watering on specified days of the week, such as Monday/Wednesday/Friday, or INTERVAL watering at intervals of 1 through 30 days, such as every 2nd day or every 3rd day.

### [5] VALVE POWER SWITCH:

This switch has 3 positions: "OFF" - disconnects power to valve circuits. "SENSOR" - activates the Remote Sensor (optional, see [17]). "ON" - connects power to the valve circuits and bypasses the Remote Sensor.

### [6] LEFT AND RIGHT ROCKER SWITCHES:

LEFT controls the left-hand 2 digits and RIGHT controls the right-hand 2 digits during PROGRAMMING functions. For either rocker switch, press (+) to increase and (-) to decrease the value of the LCD numbers. If a rocker switch is held down about 3 seconds, the LCD numbers will index rapidly. RIGHT also selects the day of the week shown at the top of LCD.

### [7] RESET SWITCH:

The RESET switch is mounted behind the panel and is accessible through the small hole labeled "RESET". Operating this switch with an unfolded paper clip or other small wire disconnects all power to clear and reset a locked up or scrambled display. This does not effect user programmed data.

## ADDITIONAL FEATURES

### [8] BATTERY BACK-UP/NON VOLATILE MEMORY

Non volatile memory (contains the user entered watering program) is unaffected by power outages. However, a battery must be installed to maintain time of day during a power outage. In the event of a power outage beyond the life of the battery (or if the battery is not installed), the controller will not have the accurate time of day. A fresh battery will last for a total of several days of power loss. During a power outage, display will show the usual information including watering operations, but the valves will not operate. When power is restored, control resumes normal operation and time must be reset. This will be indicated by a flashing display when power is restored.

### [9] START TIME STACKING:

Starting Times which occur while a previous watering cycle is in progress are "stacked" in the memory. As each watering cycle is completed, the "stacked" starts are used so that none of the watering schedule is lost. All "stacked" starts will take place even if simultaneous or carried over midnight. If P3 is in long time mode it's start times will run as programmed even if that means it runs at the same time as P1 or P2.

### [10] PROGRAMS P1, P2, P3:

The three programs may be scheduled independently to suit various lawn and plant requirements. For example: Program P1 could be programmed to start at 3:00 AM and water the lawn on Monday/Wednesday/Friday for 20 minutes each on Stations 1 through 8; Program P2 might be set up to start at 1:00 AM Sunday to water the flower beds for 45 minutes each on Stations 9 and 10; P3 might be set to drip-water the trees for 3 hours on Station 11 and 12, on Thursday.

Note that stations may be programmed to operate on P1 or P2 or P3 or all three.

The three programs are independent except they will not run simultaneously unless P3 is in long time mode then it can operate at the same time as P1 or P2. If they are inadvertently programmed to start at the same time on the same day, Program P1 will water first then Program P2 then Program P3.

### [11] AUTO % TIMING:

If the weather is unusual, station time may be increased or decreased by 100% in 1% increments by setting the BOTTOM DIAL in the "AUTO SEASON %" position. While watering, the display will show the actual increased or reduced station time. When weather is again normal, the BOTTOM DIAL may be returned to "AUTO 100%" to use originally programmed station time.

### [12] STATION TIME COUNTDOWN:

As station time progresses during a watering cycle, the time shown in the LCD decreases each minute so that it always indicates how much watering time is actually left. This holds true for both of the "AUTO" positions, SEASON % and 100%.

### [13] MANUAL OPERATION:

Manual watering of any single station is available with the TOP DIAL in the "MAN" position.

### [14] WATER RATIONING:

The "INTERVAL" position at the SCHEDULE switch provides watering intervals of 1 to 30 days to suit almost any water rationing program. When set at the "2 day" interval, this becomes a true "odd/even" program with watering canceled on the 31st day of long months.

### [15] DRIP WATERING:

Program P3 can be allocated to station timing of 0.1 hour to 9.9 hour (instead of 1-99 minutes). To do this, remove wiring access cover and locate small square contact cover on circuit board next to fuse. Disconnect power, remove the small contact cover from two pins, place it over one pin (save cover in case you wish to replace) and reconnect power. P3 is now in long station time mode.

### [16] REMOTE SENSOR:

All models have a SENSOR circuit which may be connected to various sensing devices, such as the Weather-matic "RAINSTAT" rain sensor, moisture detectors, or any device which closes a non-powered switch or non-powered relay contacts. This circuit is normally connected when the controller is installed but may be one at a later time if desired. The remote sensor wire loop (white wire with purple stripe) is located underneath the wiring access cover. Disconnect power, cut loop, make sensor connection into the cut loop ends, and reconnect power.

### [17] RAIN OFF

This feature allows you to program a one time off period of 1-7 days when control will not turn on the stations. See "Additional Programming".

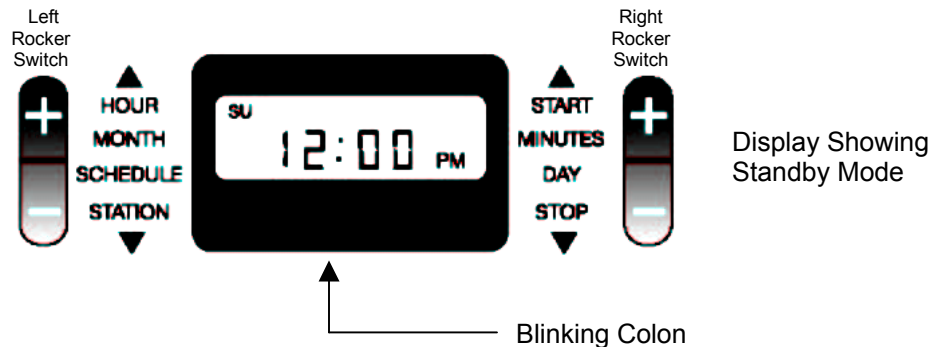
### [18] TEST

Allows a one time operation of 2 minutes for all stations that have any run time programmed. See "Additional Programming".

## STARTING UP

### [A] POWER-UP PROCEDURE:

When the controller is first connected to a power source, the DIGITAL DISPLAY will show all of the available display characters for about 3 seconds and then flash "0.00". Turn BOTTOM DIAL to an "AUTO" position and press "STOP" at RIGHT ROCKER SWITCH to stop flashing. Display will now be in the "STANDBY MODE" showing the day as Sunday (SU) and time of day as 12:00 PM with a BLINKING colon.



### [B] BEFORE PROGRAMMING:

If display is in the "STANDBY MODE" with "blinking" colon as illustrated above, proceed with "SETTING THE CLOCK", section [C] below.

If display shows random characters or is blank, reset controller as follows:

- (1) Make certain the BOTTOM DIAL is in an "AUTO" position
- (2) Locate the small hole labeled "RESET"
- (3) Using a small piece of wire similar to a paper clip, insert through hole and momentarily push the RESET switch located under eh panel. The display will briefly turn on all characters and then a flashing "0.00"
- (4) Press "STOP" at RIGHT ROCKER SWITCH to stop flashing. Display will now change to the "standby mode" showing SU and "12:00 PM" with a blinking colon indicating that the controller is keeping time and functioning normally.

### [C] SETTING THE TIME, DATE AND TODAY:

Rotate BOTTOM DIAL into the "SET CLOCK" section.

- (1) TIME: Set current hours with LEFT ROCKER SWITCH and minutes with RIGHT ROCKER SWITCH (including AM and PM)
- (2) DATE: Set current month with LEFT ROCKER SWITCH and day of the month with RIGHT ROCKER SWITCH, EX: February 12 = 2 12.
- (3) TODAY: Set day of the week with RIGHT ROCKER SWITCH. EX: SU=Sunday, MO=Monday, etc.)

NOTE: If CALENDAR has been previously programmed and the "DATE" or "DAY" is being changed, the CALENDAR programming should be checked for correctness with respect to the new "DATE" or new "DAY" and re-programmed if necessary.

NOTE: When control is connected to 50HZ POWER, it automatically changes clock to 24 hour timing (no AM or PM).

## WATERING MODES / AUTOMATIC WATERING (STEPS 1 – 4)

### [A] AUTOMATIC WATERING:

Setting an Automatic Watering Program involves 5 STEPS.

**STEP 1** Determine if you want a WEEKLY or INTERVAL watering schedule.

**STEP 2** Select an Automatic Watering Program P1, P2 or P3.

**STEP 3** Set which day(s) you want watering to occur on.

**STEP 4** Set how long you want each station to water.

**STEP 5** Set what time(s) you want watering to begin.

You may program 3 different Automatic Watering Programs by utilizing Program P1, Program P2, and Program P3. Also see [10] in ADDITIONAL FEATRURES section for further explanation.

**STEP 1** Determine which type of watering SCHEDULE you want. There are two choices:

WEEKLY: will water on specific days of the week.

EX: water every Monday/Wednesday/Friday.

INTERVAL: will water at an interval of every "so many" days.

EX: every 2nd day, every 3rd day, etc

- Now, slide the SCHEDULE switch to the WEEKLY or INTERVAL position.

**STEP 2** Select Watering Program P1 at TOP DIAL

**STEP 3** To set the days you want to water

- Rotate BOTTOM DIAL to SCHEDULE position

For WEEKLY watering schedule:

- Use RIGHT ROCKER SWITCH to select the number for each day of the week (1=Sunday, 2=Monday, etc.) in the right hand side of the display.
- At top of display (SU, MO, etc.) turn each day "off" with LEFT ROCKER SWITCH (-) for days you do not want to water. Or turn each day "on" with LEFT ROCKER SWITCH (+) for days you want to water.

For INTERVAL watering schedule:

- Use RIGHT ROCKER SWITCH to select the watering interval (1=every day, 2= every 2nd day, 3=every 3rd day, etc.) in the right hand side of the display. Any interval from 1-30 days maybe selected.
- At top of the display (SU, MO, etc.) use LEFT ROCKER SWICH to select an day of the CURRENT week on which interval would begin.

**STEP 4** Set how long you want each station to water.

- Rotate BOTTOM DIAL to STATION TIME position.
- Select station number in left hand side of display with LEFT ROCKER SWITCH.
- Set watering time 1-99 minutes,\* in right hand side of display with RIGHT ROCKER SWITCH.

\*This can be: .1-9.9 hours in .1 hour increments for P3 if it is in long time mode.

(See [15] in ADDITIONAL FEATURES section).

## WATERING MODES / AUTOMATIC WATERING (STEP 5)

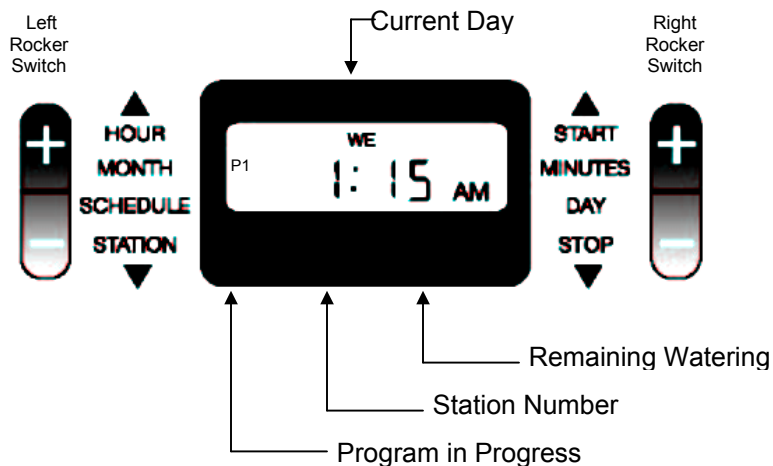
**STEP 5** Set what time(s) you want watering to begin.

- Rotate BOTTOM DIAL to START TIME A.
- Set hour with LEFT ROCKER SWITCH and minutes with RIGHT ROCKER SWITCH. Do not forget AM and PM
- If desired, you may start this program 2 more times in a day by repeating these 2 steps for START TIME B and START TIME C. Set unused start times to OFF with LEFT and RIGHT ROCKER SWITCHES.

Repeat steps (2) through (5) for Programs P2 and P3 if required.

Finally, rotate BOTTOM DIAL back to AUTO 100% position.

While watering, LCD will appear as below:



During an AUTOMATIC watering cycle, stations (zones) may be advanced by momentarily pressing RIGHT ROCKER SWITCH as START. Water cycle will continue from the indexed station to the last station programmed with a watering duration.

If the BOTTOM DIAL is moved out of one of the "AUTO" positions while a watering cycle is in progress, the watering will be interrupted. During the interruption, the controller's program continues to run including the countdown of the watering time. Watering will resume when the BOTTOM DIAL is returned to one of the "AUTO" positions.

Watering may be stopped (the watering cycle in progress will be cancelled) by momentarily pressing "STOP" at RIGHT ROCKER SWITCH. NOTE: When an automatic cycle is being stopped, there may be a "stacked start" due to overlapping schedules in which case the watering would start again. If this happens, simply press "STOP" again.

## WATERING MODES / SEMI-AUTOMATIC WATERING

### [B] SEMI-AUTOMATIC WATERING:

A SEMI-AUTOMATIC operation is manually starting one of the Automatic Watering Programs.

- With the lower dial set in one of the two Auto positions.
- Rotate TOP DIAL to P1, P2 or P3 position.
- Press START at RIGHT ROCKER SWITCH
- Rotate TOP DIAL back to AUTO.

The controller will then automatically run through the program selected and turn off when finished. The DISPLAY will return to the STANDBY MODE.

While watering, the LCD will appear the same as for and AUTOMATIC cycle. As described above for AUTOMATIC watering, stations may be advanced by pressing START, watering will be interrupted if the BOTTOM DIAL is moved, and watering can be stopped by pressing "STOP".

## WATERING MODES / MANUAL WATERING

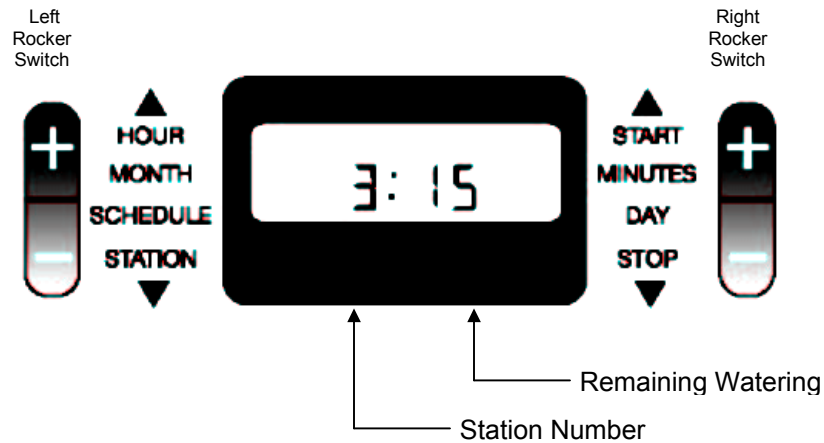
### [C] MANUAL WATERING

A MANUAL operation waters one station for up to 99 minutes. Once started, a MANUAL watering cycle will run until turned off or up to a maximum of 99 minutes.

- Rotate TOP DIAL to MAN (MANUAL).
- Select station to be run in the left hand side of display with LEFT ROCKER SWITCH
- Press START at RIGHT ROCKER SWITCH
- When watering is complete, rotate TOP DIAL back to AUTO

If TOP DIAL is moved out of "MAN" position while watering is in progress, watering will be cancelled. Watering can also be stopped by pressing the "STOP" at RIGHT ROCKER SWITCH.

While MANUALLY watering, the LCD will appear as shown below.





## ADDITIONAL PROGRAMMING

### [A] SEASON %

During certain times of the year, such as when it is unusually hot or cool, you may wish to change the watering time temporarily without modifying the programmed station watering times.

- Use TOP DIAL to select Program P1, P2 or P3
- Rotate BOTTOM DIAL to SEASON % in SET PROGRAM section
- Change % in right hand side of display with RIGHT ROCKER SWITCH. Press (+) to increase station watering time up to a maximum 200%. Press (-) to decrease watering time down to as little as 0% in 1% increments.
- Rotate TOP DIAL back to AUTO.
- Rotate BOTTOM DIAL to AUTO SEASON % to water for the increased or decreased station time.
- When weather is more normal, rotate BOTTOM DIAL to AUTO 100% to water the original programmed station watering times.
- A different SEASON % may be programmed for each Program P1, P2 or P3 if desired.

### [B] RAIN OFF

The Lawnmate control will allow you to program in a one time "off" period without affecting any other user programmed data. Control will not turn on the valves and water for the number of days you program. When this "off" period is over, control will resume normal operation.

- Rotate BOTTOM DIAL to RAIN OFF position.
- With LEFT ROCKER SWITCH, select the number of days in left hand side of display you wish control not to water. You may select 1 to 7 days.
- With RIGHT ROCKER SWITCH, select the day in the CURRENT week at top of display that you wish "off" period to begin.
- Rotate BOTTOM DIAL back to an AUTO position.

### [C] TEST

The Lawnmate can be made to turn on all valves in numerical order for which station watering time has been programmed for 2 minutes without affecting user programmed data. After this one time cycle, control will resume normal programmed operation.

- Rotate BOTTOM DIAL to TEST position.
- Press Start
- When test cycle is finished, return BOTTOM DIAL to AUTO position.

### [D] REMOTE SENSOR USE:

When a Weathermatic RAINSTAT (or other remote sensor) has been installed, the VALVE POWER switch should be left in the "SENSOR" position for normal operation. If it is necessary to water some areas when RAINSTAT has interrupted watering due to rainfall, the RAINSTAT may be bypassed by sliding the VALVE POWER switch to the "SENSOR" position.

If a RAINSTAT or other remote sensor has not been installed, the VALVE POWER switch should be left in the "ON" position for normal operation.

## HINTS AND SUGGESTIONS

- (1) On March 1 during a leap year, the "DATE" programming must be corrected to account for February 29.
- (2) Stations may be programmed to operate on P1, P2 or P3 or all three.
- (3) If Program P2 is not being used for automatic watering, it can be used to store special station durations for Semi-Automatic watering. If used this way, all "START TIMES" for Program P2 must be set to "0.00".
- (4) Whenever automatic watering is not required, such as the winter months, it is not necessary to change any programming. Simply slide the VALVE POWER switch to the "OFF" position. The controller will continue to operate as before but the valves will NOT be turned on.
- (5) Use "AUTO SEASON %" position on BOTTOM DIAL to increase watering time during extra hot periods of summer or to decrease watering time during cooler periods of spring or fall. Refer to "ADDITIONAL PROGRAMMING".
- (6) To avoid unnecessary loss from evaporation, schedule watering to finish early in the morning about an hour before to about an hour after sunrise.
- (7) When water tends to runoff rather than soaking into the ground, program 1/2 the STATION TIME and use 2 START TIMES or program 1/3 the STATION TIME and use 3 START TIMES.
- (8) **Replace the battery about once each year.** A good habit is to replace the battery each Spring when the Daylight Savings Time changes.
- (9) If the LCD is pushed, it may momentarily turn dark where touched. This does not harm the LCD and will clear up in a few seconds.
- (10) When starting a "Semi-Automatic" or "Manual" watering cycle, the first minute only of the watering duration may be any length for a few seconds to exactly 1 minute. For "Automatic" watering, the timing is accurate for the entire duration.
- (11) If the LCD seems "hazy", try changing your viewing angle so that you are looking straight at or slightly down on the LCD. These are the best viewing angles for a sharp LCD.
- (12) If Programs P1, P2 or P3 are inadvertently programmed to start at the same time, Program P1 will run first then Program P2, then Program P3. If P3 is in long station time mode, it can run at the same time as P1 or P2 if programmed to do so.
- (13) Programming may be checked by simply rotating the BOTTOM DIAL to each position you wish to check. For example, rotating to the SCHEDULE position will show what days of this week that watering will occur on.
- (14) During a power outage with a good battery installed, control display will fade out but will come back when power is restored.

## TROUBLESHOOTING

### FLASHING DISPLAY

- Back-up battery is not being used. Press "STOP" to stop flashing LCD. Install 9 volt alkaline battery and re-program starting at section [C].
- Back-up battery is discharged. Press "STOP" to stop flashing LCD. Replace battery and re-program starting at section [C].

### NO DISPLAY

- Power not connected. Supply circuit breaker tripped.
- Controller wired to a standard switched outlet, and the wall switch has been accidentally turned off.
- Electrical disturbance. Reset per "RESET PROCEDURE" at section [B], and reprogram controller starting at section [C].

### SCRAMBLED DISPLAY

- Electrical disturbance. Reset per "RESET PROCEDURE" at section [B], and reprogram controller starting at section [C].

### DISPLAY ON BUT NO WATERING

- VALVE POWER switch is not turned on. Slide switch to SENSOR position if a "Rain-Stat" (Remote Sensor) has been installed or to "ON" position if a "Rain-Stat" is not being used.
- The "Rain-Stat" cup is full. Slide VALVE POWER SWITCH to the "ON" position to override the "Rain-Stat". When finished watering, return VALVE POWER SWITCH to the SENSOR position for normal automatic operation. If another type remote sensor is used this sensor may be preventing normal watering. Follow same procedure as for "Rain-Stat".
- Water is not turned on at the source.
- Fuse is blown. See "Fuse Replacement" for fuse type and rating.
- NOTE: When none of the above help, remove the back-up battery. If the display goes blank, power has been disconnected. See preceding section "NO DISPLAY".

### WATERS ON WRONG DAYS

- Check SCHEDULE programming.
- The DATE is incorrect.
- The TODAY setting is incorrect.

### WATERS IN PM INSTEAD OF AM

- Verify TIME was set correctly with respect to "AM/PM" indicators.
- Check "START TIMES" with respect to "AM/PM"

### NO LONG TIMING ON P3

- Contact cover has not been removed. See section [16] under ADDITIONAL FEATURES

### NO AUTOMATIC START

- BOTTOM and TOP DIALS are not in AUTO position.
- A START TIME is not programmed.
- A watering cycle is already in process.
- SCHEDULE switch has been moved to the other position where watering days were not programmed.

### CANNOT SEMI-AUTO START

- A watering cycle is already in progress.
- Program being started does not have any station time programmed.

### CANNOT MANUALLY WATER

- A watering cycle is already in progress.

### CLOCK DOES NOT KEEP CORRECT TIME

- Household appliances such as mixers or refrigerators and power tools such as electric drills or saws can be at fault.
- To correct, first make sure the controller's ground wire (green) is properly connected to the ground system and that the ground system is properly earthed. The controller's built in suppression will take care of the usual line transients.
- Second, if power tools or appliances are plugged in to the same electrical circuit as the controller, try installing a line "spike filter" at the controller input.
- Third, if one of the above does not remedy the situation, connect the controller to a different circuit.

### CLOCK LOSES TIME (50 HZ SYSTEM ONLY)

- Reset per "Reset Procedure" and re-program starting at section [C].

### RESET PROCEDURE

- (1) Make certain the BOTTOM DIAL is in the "AUTO" position.
- (2) Locate the small hole labeled "RESET".
- (3) Using a small piece of wire similar to a paper clip, insert through hole and momentarily push the RESET switch located under the panel. The display will briefly turn on all characters and then a flashing "0.00".
- (4) Press "STOP" at RIGHT ROCKER SWITCH to stop flashing.
- (5) Reprogram control as desired.

## ACCESSORIES AND MAINTENANCE

### BATTERY REPLACEMENT

Battery should be changed about once every 12 months. Replace with 9 volt ALKALINE BATTERY, ENERGIZER #522 or a DURACELL mn 1604.

Open the Access Cover. After the new battery is connected, place on the bottom of the housing between the two braces where the word "BATTERY" is shown. Replace Access Cover. Reprogram if necessary.

### FUSE REPLACEMENT

Fast-Blow,  $\frac{3}{4}$  Amp., 5x20mm, Radio Shack #270-1242, Bus GMA-3/4.

Before replacing a blown fuse, correct the field wiring problem which is causing fuse to blow and TURN OFF POWER. Open the Access Cover. Using a fuse puller, lift out blown fuse and replace with one listed above. Replace the Access Cover and turn on the power. Verify programming.

### AVAILABLE ACCESSORIES

WEATHERMATIC #950 "Rain-Stat – Rain Sensor"

WEATHERMATIC #952 "Pump Circuit Package"

WEATHERMATIC #951-10 "Wiring Access Kit"

WEATHERMATIC #951-12 "Wiring Access Kit"

WEATHERMATIC #954 "Charge Module" for changing Nickel-Cadmium back up battery.

## WARRANTY

Each Weathermatic Lawnmate Controller is warranted to be free from defective material and workmanship. For complete details concerning the limits and length of your warranty, refer to the Warranty Card enclosed with your Weathermatic controller or call your installing contractor or Weathermatic distributor. Please complete and return the Warranty Card promptly.

## SERVICE

Weathermatic Lawnmate controllers are designed to provide years of service. All controllers and other Weathermatic sprinkler system components are backed by Weathermatic's limited warranty. Should product service be necessary, you are recommended to contact your installing contractor or Weathermatic distributor.