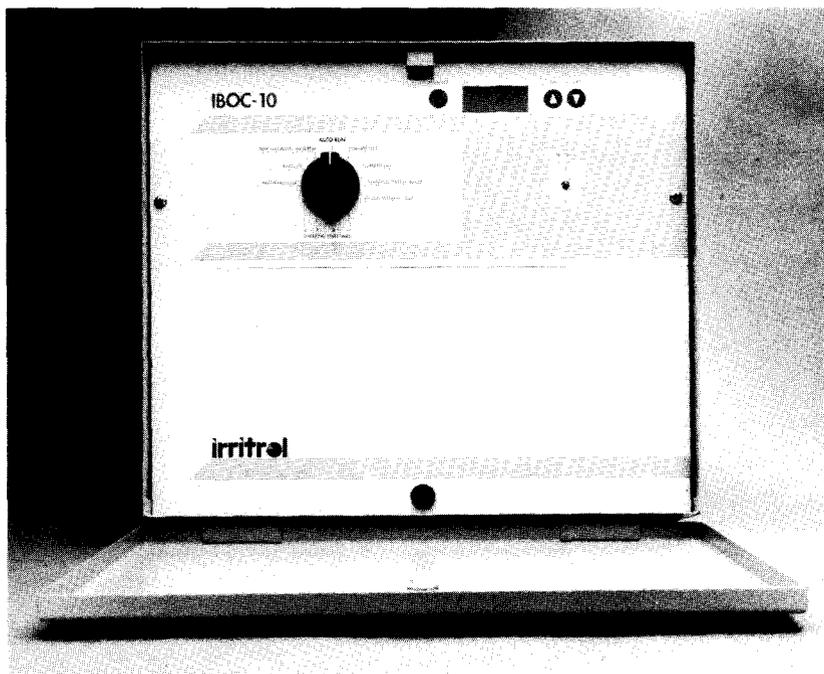


IBOC SERIES BATTERY OPERATED CONTROLLERS



OWNER'S MANUAL
2, 4, 6, 8 and 10 stations

irritrol



Thank you for purchasing the IrriTrol IBOC battery operated controller series. Listed below are some important features you should be aware of before you begin programming. Details on how to implement these features are described on the following pages.

- 24-volt battery powered via two 12-volt lantern batteries or 24VAC powered
- 14 day calendar
- Two independent programs
- Station watering time of 1 to 99 minutes
- Low battery indicator
- Sensor hook-up
- Two minute test cycle
- DC latching solenoids for conversion of valves available for IrriTrol, Richdel, Hardie, or Superior*
- Selectable hours watering time from 0.1 to 9.9 hours in program B
- Selectable cycle looping

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INSTALLATION INSTRUCTIONS

CONVERTING THE SOLENOIDS

The IBOC controller activates valves by means of a pulse of electric current, which latches and releases the solenoid position rather than providing continuous power to the solenoids. This requires DC latching solenoids for each valve. The use of DC latching solenoids on this system greatly reduces the power drain on the batteries. DC latching solenoids are available for IrriTrol, Richdel, Hardie and Superior* Valves.

1. Remove AC solenoids.
2. Install DC latching solenoids
3. Wire DC latching solenoids red wire to station terminal and black wire to valve common following the diagram shown in Fig. #1. Refer to wire distance chart for gauge, distance and pressure requirements.

CONTROLLER TO VALVES

WIRE SIZE (Awg)	20	18	16	14	12
DISTANCE (Ft)	200	300	500	800	1200

Maximum Operating Pressure, 80 psi

MOUNTING THE CONTROLLER

The controller is in an outdoor, rain-tight, rust-resistant enclosure. Nevertheless, the controller should be installed away from direct sprinkler spray.

1. Mount IBOC controller vertically on flat secure surface in a cool, dry and stable environment. Install controller using the enclosed template or use pedestal template if pedestal mount.
2. Remove the lower panel by unfastening the fastener located on bottom center of the panel.
3. Install (2) 12VDC heavy duty lantern batteries in the battery compartment as shown in Figure #1.
4. Wire DC latching solenoids and 24VDC supply to proper terminals as shown in Figure #1.

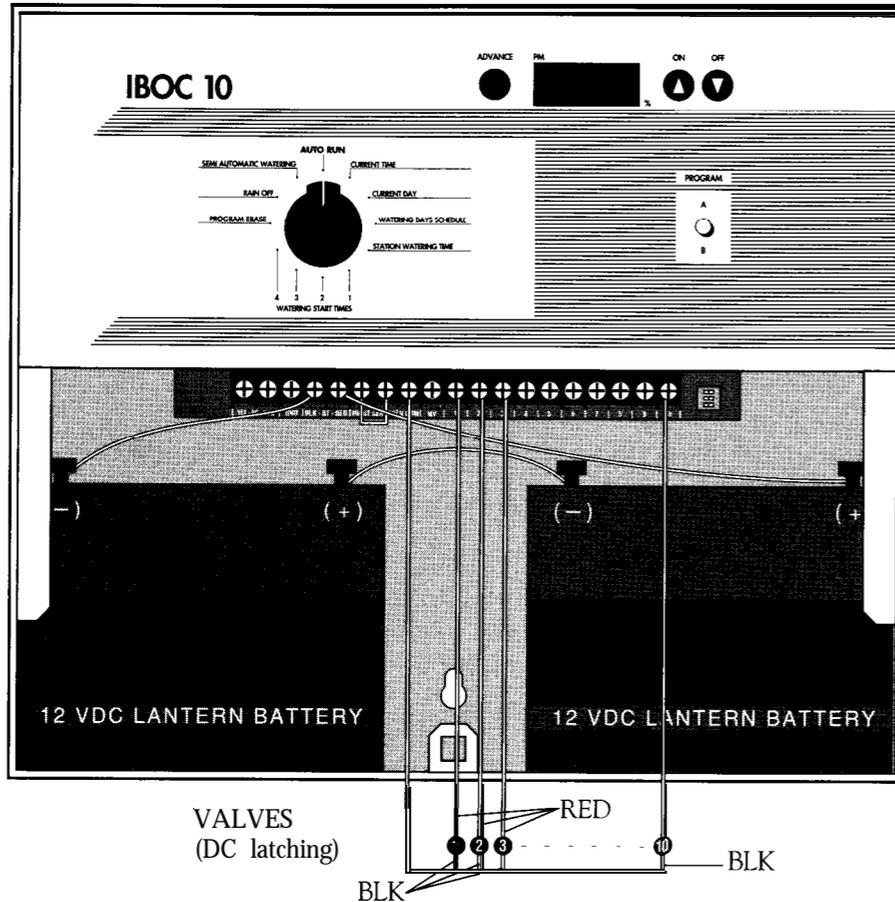


Figure #1

NOTE: Power supply must be disconnected prior to service of controller. Remove batteries during prolonged "off" periods.

INSTALLING AND USING SENSOR PORT

The controller is equipped with a sensor inhibit hook-up.

RAIN OFF OR FREEZE CHECK SENSOR HOOK-UP —
 Terminals labeled "Inhibit Sensor" on the controller's terminal block. When the sensor contacts open, the controller will inhibit output to all stations (all programs are affected). **If no sensor is used, the "short" wire must be installed.**

To install a sensor:

1. Attach the sensor to the terminals of the controller's terminal block. Adjust the sensor according to manufacturer's instructions.

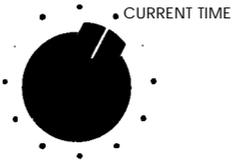
SETTING THE CONTROLLER

SELECT PROGRAM A

CURRENT TIME - The current time of day.

To Set:

1. Set Function Dial to Current Time position.



2. Use ^ to increase or ▼ to decrease time.

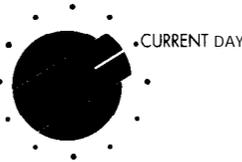
3. If Current Time is during the P.M. period make sure PM indicator (') is displayed.



CURRENT DAY - The current day of the week.

To Set:

1. Set Function Dial to Current Day position.



2. The Current Day will appear in the left side of the display as a number; 1 = SUN, 7 = SAT, 8=SUN (2nd week).

3. Press the ADVANCE button repeatedly until number corresponding to the current day appears in the display.

AUTOMATIC SAFETY BACK-UP PROGRAM (ASBP)

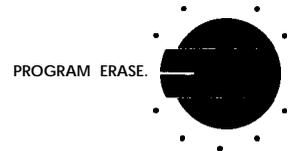
At this point, the IBOC controller will automatically operate the factory preset ASBP, each station will water for 10 minutes every day starting at 4:00 A.M. Please note that the ASBP is in Program A only. If you wish to establish your own program, use the instructions that follow.

Before reprogramming, you may use the Program Erase, PE feature to erase the ASBP.

PROGRAM ERASE (PE)

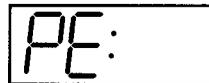
To erase all the Watering Times, Watering Start Times, and Watering Day Schedule:

1. Set Function Dial to the Program Erase position.



2. Press both the ^ and ▼ buttons at the same time.

3. The P.E. colon (:) on display will flash, indicating that the existing program(s) have been erased (both programs will be erased regardless of program switch position).



ESTABLISHING YOUR OWN PROGRAM

When establishing your own program you must complete the three steps below:

STEP I Watering Day Schedule —
The days of the week you want to water.

STEP II Station Watering Time —
How long you want each station to water.

STEP III Watering Start Times —
What time of day you want each program to start watering.

STEP I - WATERING DAY SCHEDULE

The IBOC has a standard 14 Day Watering Schedule. Please refer to the chart below for the numbers on the display corresponding to the days of the first and second weeks.

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1st Week	1	2	3	4	5	6	7
2nd Week	8	9	10	11	12	13	14

To Set:

1. Set Function Dial to Watering Day Schedule position.



2. Press Advance button to select day of week.
3. Press On button ^ to schedule a day on, and Off ▼ to schedule a day off.
4. Repeat steps 2 & 3 above for each day.

To Display Watering Day Schedule:

1. Set Function Dial to  **Watering Days Schedule.**
2. Press **Advance** button repeatedly, display will indicate days on and days off.

EXAMPLE:

1:ON = Sun of 1st week is a scheduled day on
 8:OF = Sun of 2nd week is a scheduled day off

NOTE: OF = OFF

STEP II — STATION WATERING TIME

The length of time each station will water. The watering duration can be set from 0 to 99 minutes in one minute increments.

To Set:

1. Set Function Dial to  **Station Watering Time** position.
2. Display will indicate station number (left side) and station watering time (right side).
3. Use ^ button to increase or ▼ to decrease watering time.
4. Press the **Advance** button to select the next station number.
5. Repeat steps 3 & 4 listed above.

TO DISPLAY STATION WATERING TIME:

1. Complete items 1 & 4 of Step II “Station Watering Time”.

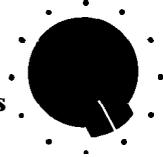
NOTE 1: To skip a station enter zero (0) as Watering Time.

NOTE 2: In the Auto/Run position, of a station is currently watering, the station number and remaining watering time will be displayed.

STEP III — WATERING START TIMES

In each position (1-4), the Watering Start time can be displayed or changed. Up to four (4) Watering Start times per day in each program can be entered. Each Watering Start time entered will initiate sequential watering of all programmed stations, within a program.

To Water Once a Day

1. Set Function Dial to  **Watering Start Times** position.

WATERING START TIMES

2. Use ^ to increase or ▼ to decrease time.
3. Be sure PM indicator (°) is displayed if Watering Start time is in the P.M. period.



To Water More Than Once a Day:

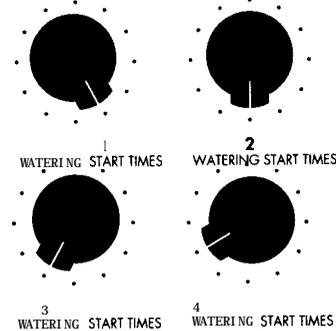
1. Set Function Dial to Watering Start Times position 2,3, or 4.



2. Complete items 2 & 3 of Step III, "Watering Start Times".

To Display a Watering Start Time:

1. Set Function Dial to Watering Start Times position 1, 2, 3 and 4.



2. Display will indicate time.



NOTE: To cancel a Watering Start time set time to zero.

HOW TO USE PROGRAM B

Watering Start times and the Watering Day schedule are programmed once for all stations in a program. This can limit the system versatility; that is why we have added Program B.

You can use Program B together with Program A, allowing up to eight Watering Start times. You can also use Program B to provide Watering Start Times, a Watering Day Schedule, and Station Watering Times that are different than those on Program A.

EXAMPLE:

You have programmed stations 1,2 & 3 on Program A, to water 10 minutes, every day, starting at 6:00 A.M. You now want to add a fourth station and you need it to water once a week, on Fridays, for 30 minutes, at 7:00 P.M. You would need to program station 4 on Program B.

1. Set Program switch to Program B.
2. Following programming Step I (Watering Day Schedule), enter 6 and 13 (1st and 2nd weeks).
3. Follow programming Step II (Station Watering Time) for station 4 only, enter 30 minutes.
4. Follow programming Step III (Watering Start Times), enter 7:00 P.M.

NOTE: Station 4 is the only station with Watering Time, therefore it will be the only station operating on Program B.

You may also overlap Watering start times using Programs A & B (two stations will be watering at the same time, one on Program A and one on Program B).

EXAMPLE:

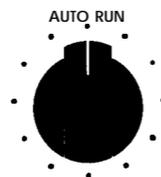
Stations 1, 2, 3 & 4 are programmed on Program A to water for 10 minutes each, every day starting at 7:30 A.M. **You** now want station 1 to repeat watering on Saturdays, for 45 minutes at 8:00 A.M.

To program Station 2 on Program B you would:

1. Set Program switch to Program B.
2. Follow programming Step I (Watering Day Schedule), enter 7 and 14 (1st and 2nd weeks).
3. Follow programming Step II (Station Watering Time) for Station 1 only, enter 45 minutes.
4. Follow programming Step III (Watering Start Times), enter 8:00 A.M.

NOTE: Station 1 and Station 4 will be watering at the same time.

When programming of the IBOC controller is completed the Function Dial should be returned to the Auto **Run** position.



OPERATING INSTRUCTIONS

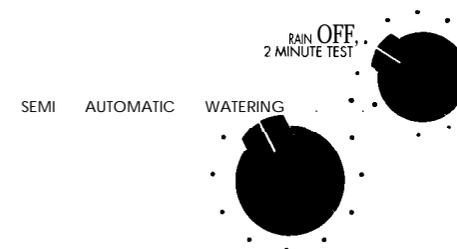
IMPORTANT

During normal operation, the colon (:) on the display will always flash. If the colon is not flashing, follow instructions for resetting the IBOC, listed under LOW BATTERY INDICATOR.

MANUAL OR EMERGENCY STATION SHUT DOWN

To shut down a station that is currently watering:

1. Set Function Dial to Semi-Automatic or Rain Off/2 Minute Test position.



2. Press the OFF ▼ button.

RAIN OFF/2 MINUTE TEST

This position has a dual function.

1. **The Rain Off** will not allow any automatic watering starts.
2. **2 Minute Test:** Press the ON A button to water each station for 2 minutes sequentially, regardless of programmed watering time (even if station watering time is zero).

NOTE 1: This mode will not alter the program presently entered. The 2 Minute Test can be used in Program A only.

NOTE 2: If you wish to return to the Rain Off mode after completion of the 2 Minute Test, the Function Dial must be turned out of the Rain Off position and turned back. There is no need to wait for the 2 Minute Test to end. You may reactivate the rain off immediately after the test is initiated.

SEMI-AUTOMATIC WATERING

In this mode any station can be activated and the unit will sequentially water the remainder of the stations for the programmed Watering Times. Only stations with Watering Times entered in the program will water.

Press the **Advance** button to first station, then press the “ON” button to start watering sequence.

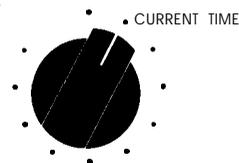
LOW BATTERY INDICATOR

If batteries are low or if power is Disconnected for a short period of time, the IBOC controller will display **LO**: When this occurs, it is necessary to reset the controller.

To reset the controller:

1. Disconnect power supply.

2. Set Function Dial to **Current Time position.**



3. Hold down either Increase **^** or Decrease **▼** buttons until display clears completely
4. Install new batteries (verify that display is still clear before hook-up of wires).

ADDITIONAL FEATURES OF THE IBOC CONTROLLER

The IBOC additional features are described below. The selectable ASBP, Hours mode and Loop mode are all user selectable features. The switches which select these features are located beneath the lower panel on the right side of the terminal strip. Remove panel to expose switches.

These dip switches read directly into the micro-processor. Therefore, each time a switch is activated or de-activated, power to the IBOC controller must be disconnected; see instructions below.

To Set:

1. Set switches to desired position.
2. Disconnect power supply.
3. Hold down the Increase **^** button until display clears completely.
4. Wait 5 minutes.
5. Reconnect power.

SWITCH #1/ SELECTABLE ASBP

When de-activated (right position), if a power failure** occurs the controller will NOT operate the Automatic Safety Back-up Program. All information will be erased from the program.

**POWER FAILURE —

Power to the controller is disconnected for longer than 5 minutes or batteries are discharged

PROGRAM B SELECTABLE WATERING TIMES

SWITCH #2/HOURS MODE

When activated (right position) it will change the Watering durations in Program B to hours. The programmed watering duration for each station will be from 0 - 9.9 hours with .1 hour (6 minutes) increments.

SWITCH #3/LOOP MODE

When activated (right position) it will allow loop capability in Program B. Watering Start Time number 1 will initiate the loop and Watering Start Time number 2 will terminate the loop. Watering Start Times 3 & 4 will remain standard watering starts, cycling only once.

WINTER NOTICE

To ensure troublefree service from the IBOC controller please remove all batteries during prolonged OFF periods. Store batteries in a cool dry place and check them before re-installing.

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