

MIC SERIES CONTROLLERS

MIC-4 MIC-8

PROGRAMMING AND OPERATING MANUAL

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TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
KEYBOARD FUNCTIONS	3
POWER CONNECT & CLOCK SET	8
PROGRAMMING	10
STATION SELECT	10
HOW OFTEN TO WATER	11
WHAT DAYS TO START	12
WHAT TIME OF DAY TO START	13
HOW LONG TO RUN	14
HOW LONG TO PAUSE	15
HOW MANY TIMES TO REPEAT	16
WHAT TIME TO STOP	17
STATION PROGRAMMING TABLE	18
ADDITIONAL FEATURES	19
WATER BUDGET	19
THE "A" STATION	20
MANUAL START & STOP	24
MONITOR WHILE ON	25
AUTO/OFF	27
SAMPLE PROGRAMS	29
TROUBLE SHOOTING	47
BLINKING DISPLAY INDICATORS	48
MIC PROGRAMMING SHEETS	

INTRODUCTION

FEATURES

The "Multiple Irrigation Controller" (MIC) has several features that make it significantly different from other controllers. The major features are listed below.

CHOICE OF 4 OR 8 STATIONS

INDEPENDENT STATION PROGRAMS - Each station is programmed completely on its own, as if each station was a single-station controller.

SIMULTANEOUS OPERATION - Up to all 4/8 Stations can operate at one time.

INDEPENDENT ON SEQUENTIAL OPERATIONS - Stations can be set to operate on their own individual schedules or sequentially (one after the other).

CYCLICAL OPERATING SCHEDULE - Start days are based on days between starts (instead of days of the week) with days between starts from 0 days (start every day) to 60 days (start every 61 days).

WIDE RANGE OF RUN TIMES - 1 to 60 seconds; 2 to 60 minutes; 1.1 to 6.0 hours (1.10 hour increments) 7 to 60 hours (1 hour increments).

MULTIPLE RESTARTS - 0 to 14, or continuous until a programmed stop time.

PAUSE BETWEEN RESTARTS - 0 or 1 second to 60 hours.

EXTRA POWER - Up to four 2-watt valves per station; up to eight 2-watt valves at once for the entire controller.

PRECISION WATER BUDGETING - 10% to 200% of programmed watering time (10% increments).

<u>SINGLE KEY AUTOMATIC SHUT-OFF</u> - Prevents all automatic starts but saves programmed schedules.

MANUAL START/STOP - Manually starts/stops any station at any time with no change to the programmed schedule.

MONITORING - Check any station's RUN TIME, PAUSE TIME and REPEATS TO GO while the station is running without effecting the program. If one time change to the schedule is desired it may be initiated during the monitor process without affecting the programmed schedule.

OPERATING MODES

The MIC will operate in one, any two or all three of the following modes:

<u>SIMULTANEOUS INDEPENDENT MODE</u> - Each Station starts and operates on its own complete schedule with <u>any or all stations on at the same</u> time.

SEPARATE INDEPENDENT MODE - A group of stations may be isolated from the remaining stations. Each station within this group will operate on its own schedule. However, a master program which governs the group will ensure that only one station operates at a time. If programmed to start at the same time, the master program will override the individual station program and cause these stations to operate sequentially, with the lowest station number first.

Stations not included in the group may be programed to operate at any time, totally independent of the grouped stations. (See "A" Group, Page).

SEQUENTIAL MODE - A group of stations may be isolated from the remaining stations. This group of stations is governed by a master program which causes stations to operate in sequence, one at a time.

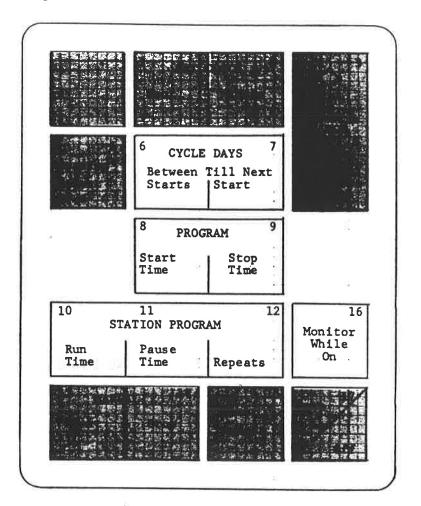
This master program determines the start day for each station in the group; the start time for the first station in the group sequence; the number of repeats for all stations in the group; and the stop time for all stations in the group. Each station in the group controls only its own Run Time and Pause Time (which delays the start of the next station in the sequence).

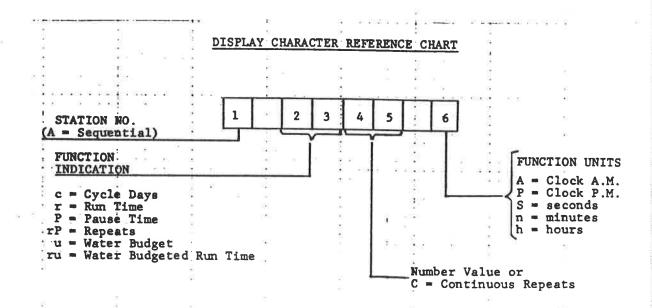
Stations not included in the group may be programmed to operate at any time, totally independent of the grouped stations. (See "A" Group, Page).

KEYBOARD FUNCTIONS

SYSTEM PROGRAM KEYS Operate for central controller functions.

STATION PROGRAM CONTROL KEYS Input values to control watering schedule.





KEY BOARD

- 1. SET CLOCK HOUR Programs the hour of the day.
- SET CLOCK MINUTE Programs the minute of the day.
- 3. Increases numerals in display; keep key pushed for rapid advance.
- 4. Decreases numerals in display; keep key pushed for rapid advance.
- 5. STATION SELECT Selects the station number to be programmed, monitored or manually started or stopped.
- 6. CYCLE DAYS BETWEEN STARTS Programs the number of days between watering days. (Days between watering can range from 0 to 60: 0 = watering every day; 6 = watering one day a week; etc.)
- 7. CYCLE DAYS TILL NEXT START Programs the day the irrigation schedule will commence. May also be used as a "monitor" function to display next start. Can range from 0 to 60: 0 = the schedule will start today; 1 = the schedule will start tomorrow, etc.)
- 8. PROGRAM START TIME Programs the time of day watering should start on the selected days. (Midnight is "no-start".)
- 9. PROGRAM STOP TIME Programs a "deadline" time when watering will cease even though schedule has not been completed; also used to stop a continual repeat schedule. This function is optional and not integral to the operation of the controller. (Midnight is "no-stop".)
- 10. STATION PROGRAM RUN TIME Programs the length of watering time for each start time and all repeats.
- 11. STATION PROGRAM PAUSE TIME Programs the desired amount of "non-watering" time between watering times. To be used when REPEAT cycles are programmed or when operating stations sequentially to cause a delay between the stop of one station's run time and the start of next station in the sequence.
- 12. STATION PROGRAM REPEATS Programs the desired number of times the program set for any particular station will repeat, to a maximum of 14 repeats. If more repeats are desired, the STATION PROGRAM REPEAT mode may be set for CONTINUOUS repeats. When in the CONTINUOUS repeat mode, a STOP TIME must be programmed to stop the cycle.
- MANUAL START To start the watering schedule for the selected station (indicated by the leftmost digit in the display).
- 14. MANUAL STOP To stop watering in progress at the selected station (indicated by the leftmost digit in the display).

WATER BUDGET - To increase or decrease the amount of water applied by either increasing or decreasing the length of time watering is to occur. The increase or decrease is expressed in percentage of programmed time and may be adjusted in increments of 10%. Increasing or decreasing the WATER BUDGET changes the watering time for all stations the same percentage.

EXAMPLE: Station #1 is programmed to water for 2 hours. Water budgeting is set for 150%. Actual watering time for Station #1 will be 3 hours.

MONITOR WHILE ON - When depressed, display will indicate the Run Time or Pause Time remaining and/or the number of Repeats remaining. When it appears in the display, Run Time, Pause Time and Repeats may be changed FOR THE CURRENT CYCLE ONLY. The program will not be affected.

NOTE: The station selected for monitoring must be in the Run, Pause or Repeat mode for Monitor While On to operate.

17. <u>AUTO/OFF</u> - When depressed, the AUTO/OFF key will stop all watering in progress and prevent any future automatic starts. Return to automatic operation is by pressing AUTO/OFF again.

NOTE: When in the OFF position, the display will revert to time of day and the rightmost digit in the display will blink.

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POWER CONNECT & CLOCK SET

Connect power leads to 110V 60 Hz AC current.

When power is applied, the display will blink. This is an indication that there is no program in the controller.

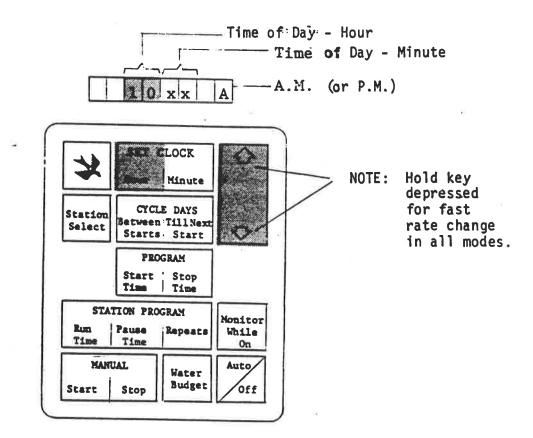
SET THE CLOCK

Before you begin programming, the clock must be set to the correct time of day.

1. Press SET CLOCK Hour.

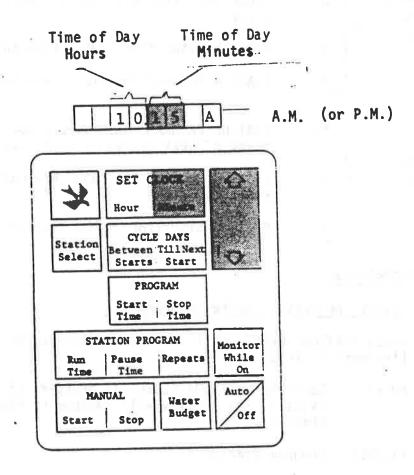
Press igwedge or igtriangle until display indicates the current hour.

EXAMPLE: Current time is 10:15 A.M.



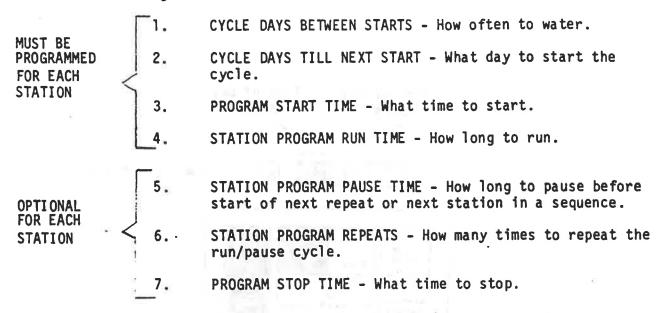
2. Press SET CLOCK Minute.

Press or vuntil display indicates:



WHAT IS AN IRRIGATION SCHEDULE?

Each station of the MIC has the capability of providing a complete irrigation schedule. An irrigation schedule consists of 7 elements:



BEGIN PROGRAMMING

1. Select the station to be programmed:

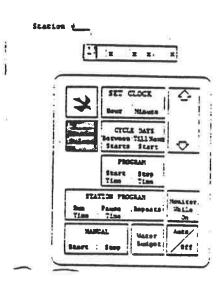
Press STATION SELECT until desired station number appears in the display (leftmost digit).

NOTE:

Each time STATION SELECT is pressed, the leftmost digit in the display will advance to the next station.

EXAMPLE: Program Station #1.

Press STATION SELECT until display indicates:

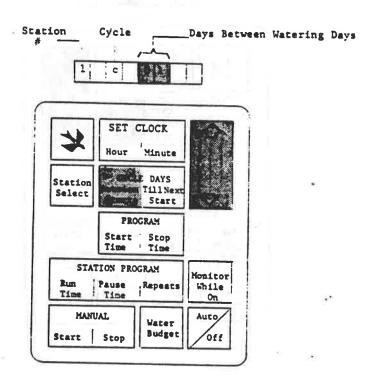


- Program the irrigation schedule for Station #1:
 - (1) How often to water.

Press CYCLE DAYS BETWEEN STARTS.

Press or until desired number of days between watering days appears in display.

EXAMPLE: Watering to occur every other day (1 day in between watering days).



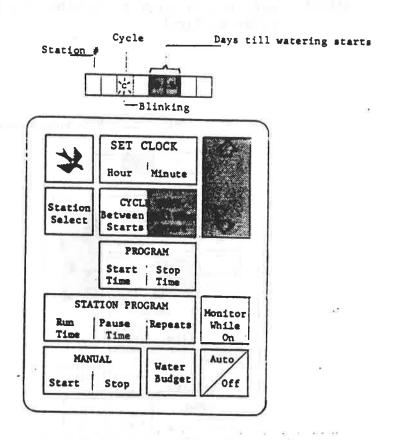
NOTE: 0 days between watering days will provide everyday watering: 2 will provide watering every third day; etc. to a maximum of 60 which will provide watering every 61 days.

(2) What day to start the cycle

Press CYCLE DAYS Till Next Start

Press \bigcirc or \bigcirc until desired number of days to a start day appears in display.

EXAMPLE: Watering to start tomorrow (1 day to start day)



NOTE: If CYCLE DAYS Till Next Start is set at 0, watering will occur today, providing the actual time of day is not later than the programmed start time.

(3) What Time to Start:

Press PROGRAM START TIME!

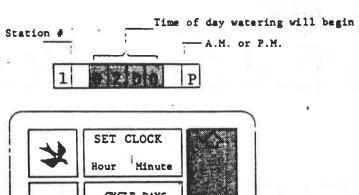
Press \bigcirc or \bigcirc until desired start time appears in display.

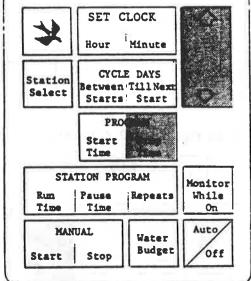
NOTE:

Start times may only be set on the quarter hour. Only one start time per station may be programmed. For additional starts, see (5) & (6).

If you do NOT want a station to operate, set the time to BLANK (midnight).

EXAMPLE: Station Program watering to start at 2:00 P.M.





(4) How long to run

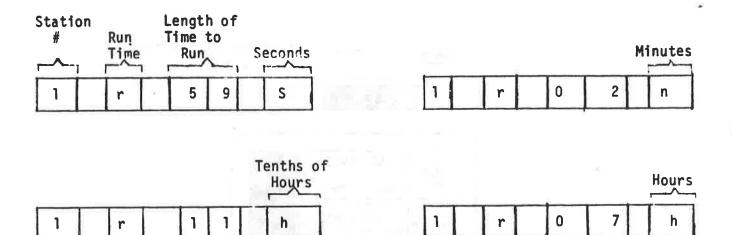
Press STATION PROGRAM RUN TIME

Press \bigcirc or \bigcirc until desired start time appears in display.

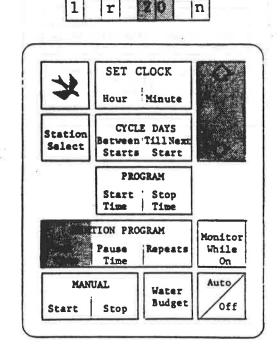
NOTE:

When \(\) is depressed, the RUN TIME advances in seconds from 0 to 60, then displays time in minutes from 2 to 60, then in tenths of hours from 1.1 (1 hour and 6 minutes) to 6.0 (6 hours) then in hours from 7 to 60.

As time advances from seconds to minutes to hours, the time designator (rightmost digit in the display) will change accordingly as follows:



EXAMPLE: Station 1 to run for 20 minutes: .



(5) How long to pause before start of next repeat, or star of next station in a sequence.

Press STATION PROGRAM PAUSE TIME.

Press \bigcirc or \bigcirc until desired pause time is indicated in the display.

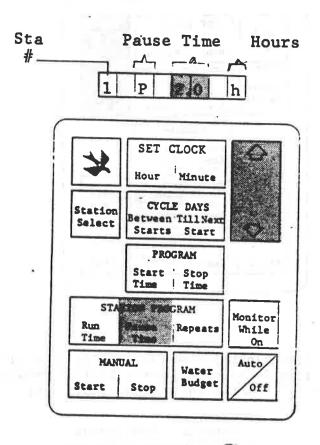
EXAMPLE: Station to pause for 2 hours before repeating

the 20 minute run time.

EXAMPLE: If stations are set to run sequentially there

is a 2 hour delay between when this station stops and the next station in the sequence

starts.

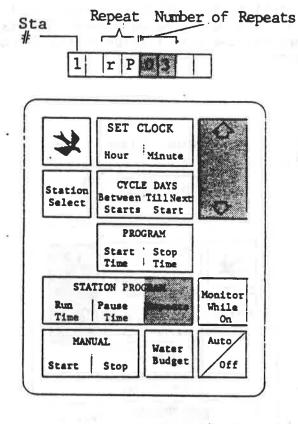


(6) How many times to repeat Run/Pause cycle

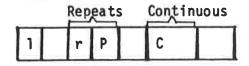
The Run/Pause cycle may be repeated from 1 to 14 times or programmed to repeat continuously.

Press STATION PROGRAM REPEATS.

Press or valuatil desired number of repeat times is indicated in the display.



If continuous (indefinite) repeating of the 20 minute run time, 2 hours pause time is required, press STATION PROGRAM REPEATS, press or until the display indicates;



The cycle will continue to repeat indefinitely. A Stop time must be programmed to stop the cycle.

(7) What time to stop

Press PROGRAM STOP TIME.

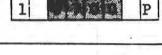
Press \bigcirc or \bigcirc until desired stop time appears in the display.

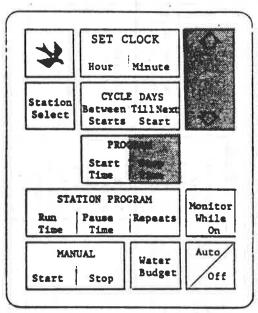
NOTE:

Stop times may be set at any quarter hour. If the programmed Stop Time is earlier than the programmed Start Time or the current time of day, the stop will occur at the programmed Stop Time on the following day.

If the Stop Time and Start Time are the same, the schedule will not start.

EXAMPLE: Stop Time to be 7:00 P.M.





NOTE:

Station #1 has been programmed to start at 2:00 P.M., to run for 20 minutes, to pause for 2 hours and to repeat 3 times. This program would complete at 9:00 P.M. if no Stop Time were programmed. The Stop Time will override any watering schedule set beyond the Stop Time.

3. Repeat Programming instructions for each of the remaining stations.

STATION PROGRAMMING TABLE

FUNCTION	SIMULTANEOUS INDEPENDENT MODE'		SEPARATE INDEPENDENT MODE		SEQUENTIAL MODE	
	Stations 1-4/8	"A" Group	Stations 1-4/8	"A" Group	Stations 1-4/8	"A" Group
CYCLE DAYS Between Starts	Set desired days between starts	Does not apply	Set desired days between starts	Does not apply	Does not apply	Set desired days between starts
CYCLE DAYS Till Next Start	Set desired days till next start	Does not apply	Set desired days till next start	Does not apply	Does not apply	Set desired days
PROGRAM Start Time	Set desired start time	No start. Set to midnight (blank)	Set desired start time	No start. Set to midnight (blank)	No start. Set to midnight (blank)	Set desired start time
PROGRAM Stop Time	Set desired stop time	No stop. Set to midnight (blank)	Set desired stop time	No stop. Set to midnight (blank)	No stop. Set to midnight (blank)	Set desired stop time
STATION PROGRAM Run Time	Set desired run time	Does not apply	Set desired run time	Does not apply	Set desired run time	Does not apply
STATION PROGRAM Pause Time	Set desired pause time	Does not apply	Set desired pause time	Does not apply	Set desired pause time	Does not apply
STATION PROGRAM Repeats	Set desired number of repeats	Does not apply	Set desired number of repeats	Does not apply	Does not apply	Set desired number of repeats
STATION LIMIT NUMBER	Does not apply	Set to 1	Does not apply	Set to desired last station in "A" Group	Does not apply	Set to desired last station in "A" Group

PROGRAMMING ADDITIONAL FEATURES

Water Budget

- 1 -

To increase or decrease the length of run time for all stations at once, press WATER BUDGET.

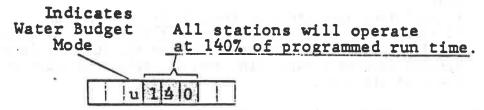
Press or until desired percentage of increase or decrease appears in the display.

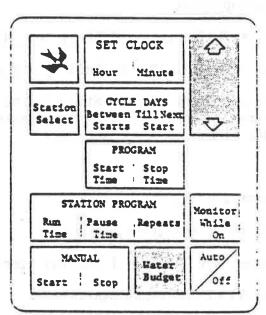
NOTE:

Water budget will affect all station run times by the

same percentage.

EXAMPLE: Increase amount of water applied by 40%.

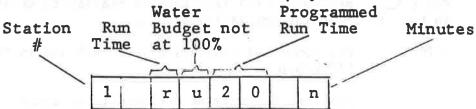




To monitor or review Run Time in Water Budget mode, press Station Select.

Press \bigcirc or \bigcirc until desired station appears in the display.

Press STATION PROGRAM RUN TIME. Display will indicate.



NOTE: The Run Time indicated is not the actual Run Time. Actual Run Time would be 20 minutes + 40%. (20 min. + 8 min. = 28 mins.).

2. The "A" Group

What is the "A" Group?

The "A" Group function links the operation of a selected group of stations to ensure that no two stations within the group will operate at the same time.

When programmed as part of the "A" Group, the stations may be operated in one of two ways:

(1) Separate Independent Mode - Individual Station Starts

- Each station STARTED, REPEATED and STOPPED by its own program.

- Each station operated (Run Time) by its own program.

- If start times overlap, start of next station is delayed until preceding station has completed its RUN TIME (preceding station's PAUSE TIME does not delay the start of the next station).

(2) <u>Sequential Mode - "A" Group Start</u>

- Each station STARTED, REPEATED and STOPPED by the "A" Group program.

- Each station operated (RUN TIME, PAUSE TIME) by its own

- "A" Group START TIME starts the first station in the group.

Next station starts when the prior station has completed
its RUN TIME and PAUSE TIME.

Programming the "A" Group

Programming the "A" Group consists of:

- (1) Select stations to be in the group.
- (2) Program the "A" Group for Individual Station Starts, or
- (3) Program the "A" Group of "A" Group Start.

1. Select Stations to be in the group

Press STATION SELECT until display indicates: "A" Group Station #

A 0 1

Press or until last desired station to be included in the "A" Group appears in the display.

NOTE:

Any number of stations may be included in the "A" Group.

Stations can only be included in sequence always beginning with Station 1.

PROGRAMMING THE "A" GROUP (Cont'd)

NOTE:

l is the minimum number of stations that can be programmed into the "A" Group - i.e., O cannot be programmed.

EXAMPLE: 3 stations in the "A" Group.

"A" Group Last Station Included in the "A" Group

A 0 3

2. <u>Separate Independent Mode Programming (Individual Station Starts)</u>

(1) Program the "A" Group Function

- a) Press PROGRAM Start Time.
- b) Press or until midnight (blank appears in the display. (The blank indicates no start time is programmed for the "A" Group since each station will have its own start time.)

(2) Program Stations in the "A" Group

- a) Press STATION SELECT one time. Station 1 will appear in the leftmost digit of the display.
- b) Program Station 1 for CYCLE DAYS Between Starts, CYCLE DAYS Till Next Start, PROGRAM Start Time, STATION PROGRAM Run Time, STATION PROGRAM Pause Time, STATION PROGRAM Repeats, and PROGRAM Stop Time.

If a station in the "A" Group is programmed with a Pause Time and Repeats, any other station in the "A" Group can start during the Pause Time of the first station. The first station's Repeat will not start until the second station's Run Time is finished.

c) Program Stations 2 and 3 in the same manner as Station 1.

(3) Program Stations not in the "A" Group

Program remaining stations - Station 4 (MIC-4) or Stations 4 thru 8 (MIC-8) - individually as desired.

3. <u>Sequential Mode Programming ("A" Group Start)</u>

(1) Program the "A" Group Function

With an "A" in the leftmost digit of the display.

a) Program "A" Station for CYCLE DAYS Between Starts, CYCLE DAYS Till Next Start, PROGRAM Start Time, STATION PROGRAM Repeats, and PROGRAM Stop Time.

NOTE: If Continuous Repeats are desired, (more than a 14), a Stop Time must be programmed to stop the cycle.

NOTE: When repeats are programmed, the cycle will repeat only after the pause time for the last station in the sequence has been completed.

(2) Program Stations in the "A" Group

- a) Press STATION SELECT one time. Station 1 will appear in the leftmost digit of the display.
- b) Enter PROGRAM Start Time.

Press or until blank (Midnight) for Station 1 appears in the display. This is an indication that no start time is programmed for Station 1.

NOTE: Stations in the "A" Group will start in one of two ways.

- l) If a station DOES NOT have a programmed Start Time, it will be started by the "A" Group Start Time ONLY.
 - 2) If a station DOES have a programmed Start Time, the station will start at its own programmed Start Time AND at the "A" Group Start Time.
 - c) Enter STATION PROGRAM Run Time for desired Run Time.
 - d) Enter STATION PROGRAM Pause Time for desired Pause Time.

NOTE: In the Sequential Mode, each station's Run Time and Pause Time will delay the start of the next station in the sequence.

PROGRAMMING THE "A" GROUP (Cont'd)

e) Press PROGRAM Stop Time.

Press \bigcirc or \bigcirc until midnight (blank appears in the display.

- f) Program Stations 2 and 3 in the same manner as Station 1.
- (3) Program Stations not in the "A" Group

Program remain stations - Station 4 (MIC-4) or Stations 4 thru 8 (MIC-8) - individually as desired.

3. MANUAL OPERATION

Manual Start

To manually start a station, press STATION SELECT until desired station appears in the display.

Press MANUAL Start.

Manual Stop

To manually stop a station, press STATION SELECT until desired station appears in the display.

Press MANUAL Stop.

NOTE:

If the station to be stopped is in the "A" Group MANUAL Stop will stop the desired station, then advance to and start the next station.

PROGRAMMING ADDITIONAL FEATURES (Cont'd)

4. MONITOR WHILE ON

- 1. Monitor station's operating status.
- 2. Temporarily change a station's operating status.

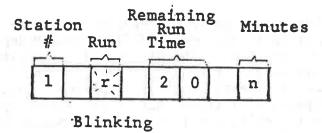
A. Monitor Station's Operating Status

A station may be monitored while it is running to review the Run Time to go, Pause Time to go and number of Repeats to go.

- 1. Press STATION SELECT until desired station appears in the display.
- 2. Press Monitor While On.

If station is Running:

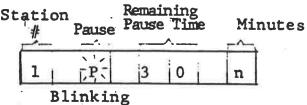
The display will indicate:



The Run Time will "count down", displaying the Run Time to go.

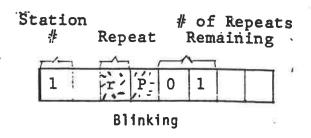
If station is Pausing:

The display will indicate:



The Pause Time in the display will "count down", displaying the Pause Time remaining.

3. To monitor the number of Repeats to go, press STATION PRO-GRAM Repeats, then press Monitor While On. The display will indicate:



B. TEMPORARILY CHANGE STATION'S OPERATING STATUS

Any operating status (Run Time to go if running, Pause Time to go if Pausing, or Repeats to go) can be increased or decreased for the currently operating schedule only without effecting the programmed values.

To change a station's operating status:

- (1) Press STATION SELECT UNTIL desired station appears in the display.
- (2) Press monitor While On. The display will indicate Run Time to go if the station is running or Pause Time to go if the station is pausing. To change the display value, press or until the desired Run Time to go or Pause Time to go is displayed. This changed value will apply ONLY to the current Run Time or Pause Time.
- (3) To change the number of repeats (while the station is running or pausing), press STATION PROGRAM Repeats and then Monitor While On. The display will indicate the number of Repeats to go. Press or until the desired number of Repeats to go is displayed. This changed number of Repeats will apply ONLY to the currently operating Run/Pause schedule, until the modified number of Repeats is completed.

PROGRAMMING ADDITIONAL FEATURES (Cont'd)

5. AUTO/OFF

To stop all watering in progress and future scheduled automatic starts, press Auto/Off. When in the Auto/Off mode, the display will revert to displaying time of day and the rightmost digit (A or P) will blink continuously.

To return to automatic start mode, press Auto/Off.

MIC PROGRAMMING EXAMPLES

This section of the manual provides programming examples for various types of installations and applications. Each example illustrates a sample typical program.

For details on how to program each function, refer to the programming instructions.

		PAGE
1	FROST PROTECTION/COOLING Simultaneous Independent Station Operation	30
2.	FROST PROTECTION/COOLING Sequential Station Operation	31
3.	NURSERY MISTING Simultaneous Independent Station Operation	33
4.	NURSERY MISTING Sequential Station Operation - 1 Misting Rate Each Day	34
5 .	NURSERY MISTING Sequential Station Operation - 2 Misting Rate Each Day	36
6.	GERMINATION Simultaneous Independent Station Operation	37
7 .	GERMINATION Sequential Station Operation	38
8.	FERTILIZER INJECTION Sequential Station Operation, Simultaneous Independent Mode	40
9.	FILTER BACKFLUSH Sequential Station Operation	42
10.	DRIP IRRIGATION Simultaneous Independent Station Operation	44
11.	DRIP IRRIGATION WITH WATER BUDGET	45
12.	TROUBLESHOTTING PROCEDURES	47
13.	BLINKING DISPLAY INDICATORS	48
14.	MIC PROGRAMMING SHEET	49

1. Example Program: FROST PROTECTION/COOLING Simultaneous Independent Station Operation

Program each station to operate continuously on its own schedule, with any or all stations on at once.

Program Stations 1 thru 8 and A:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start Stations 1 thru	0*	Starts protection today
CYCLE DAYS Between Starts Stations 1 thru	0*	Starts protection everyday
PROGRAM Start Time		
Stations 1 thru 8	6.00 P	Starts at 6:00 P.M. today
"A" Group	Midnight (Blank)	Allows independent operation for Stations 1 thru
STATION PROGRAM Run Time Stations 1 thru 8	ln*	Water will remain ON for 1 minute
STATION PROGRAM Pause Time	2n*	Water will turn OFF for 2 minutes
STATION PROGRAM Repeats		
Stations 1 thru 8	C*	Continuous cycle repeats of 1 minute ON, 2 minutes OFF.
PROGRAM Stop Time		N 4 8 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Stations 1 thru 8	8.00 A*	Cycle will stop at 8:00 A.M. tomorrow*
STATION LIMIT NUMBER		
A Group	1	Simultaneous, independent

^{*}Can vary for each station (1 thru 8)

2. Example Program: FROST PROTECTION/COOLING Sequential Station Operation

Using an MIC-8, program Stations thru 6 to sequentially frost protect/cool continuously. Program Stations 7 and 8 to irrigate independently on their own schedule, with one or both on at any one time.

Program Stations 1 thru 6:

FUNCTION	SET STATIONS AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start "A" Group	0	Start protection today
CYCLE DAYS Between Starts . "A" Group	o	Restart protection everyday
PROGRAM Start Time Stations 1 thru 6	Midnight (Blank)	No independent station start
"A" Group	6. 00 P	Start sequence at 6:00 P.M.
STATION PROGRAM Run Time Stations 1 - 6	ln*	Water ON for 1 minute*
STATION PROGRAM Pause Time Stations 1 - 5	00 S*	No delay between station starts
Station 6	2n	Station 1 will restart 2 minute after Station 6 stops
STATION PROGRAM Repeats "A" Group	С	Continuous cycle repeats
PROGRAM Stop Time "A" Group	8. 00 A	Cycle will stop at 8:00 A.M. tomorrow
STATION LIMIT NUMBER "A" Group	6	Stations 1 - 6 in the sequence. Stations 7 and 8 excluded.

^{*}Can vary for each station (1 thru 6)

Example Program 2 continued on next page.

Example Program: FROST PROTECTION/COOLING

Sequential Station Operation (Cont'd)

Program Stations 7 and 8:

FUNCTION	SET STATIONS AT	EACH STATION'S OPERATION	
CYCLE DAYS Till Next Start Stations 7 and 8	2*	Irrigation starts in 2 days*	
CYCLE DAYS Between Starts Stations 7 and 8	13*	Irrigation restarts every 14 days*	
PROGRAM Start Time Stations 7 and 8	5. 30 A*	Irrigation starts at 5:30 A.M. every 14th day	
STATION PROGRAM Run Time Stations 7 and 8	32 h*	Water will remain ON for 32 hours*	
STATION PROGRAM Pause Time Stations 7 and 8	00 S*	No pause time	
STATION PROGRAM Repeats Stations 7 and 8	0*	No repeats	
PROGRAM Stop Time Stations 7 and 8	Midnight** (blank)	No stop time**	

^{*}Can vary for each station (7 and 8)

^{**}For irrigation to continue more than 23-3/4 hours, station must be set at No Stop.

3. Example Program: NURSERY MISTING Simultaneous Independent Station Operation Using an MIC-8, operate all stations on their own schedules, with simultaneous operation of any stations.

Program Stations 1 thru 8 and A:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start Stations 1 thru 8	. 0	Starts first misting today
CYCLE DAYS Between Starts Stations 1 thru 8	. 0	Restarts misting every day
PROGRAM Start Time Stations 1 thru 8	6.00 A*	Starts misting at 6:00 A.M. today
"A" Station	Midnight (Blank)	Independent for Stations 1 thru 8
STATION PROGRAM Run Time Stations 1 thru 8	05.:'S*	Water ON for 5 seconds*
STATION PROGRAM Pause Time	10n*	Water OFF for 10 minutes*
STATION PROGRAM Repeats Stations 1 thru 8	c -	Continuous cycled misting
PROGRAM Stop Time Stations 1 thru 8	8.00 P*	Stops misting at 8:00 P.M. today*
STATION LIMIT NUMBER "A" Station	1	Simultaneous, independent

^{*}Can vary for each station (1 thru 4/8)

4. Example Program: NURSERY MISTING Sequential Station Operation - 1 Misting Rate Each Day

Using an MIC-8, program Stations 1 thru 5 for continuous misting everyday; program stations 6 thru 8 for no operation.

Program Stations 1 thru 5 and A:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start "A" Group	0	Start misting sequence today
CYCLE DAYS Between Starts "A" Group	0	Restart misting sequence everyday
PROGRAM Start Time Stations included in sequence (1-5) "A" Group	Midnight (Blank) 6.00A	No independent starts Start misting sequence at 6:00 A.M.
STATION PROGRAM Run Time Stations included in sequence (1-5)	5S*	Mist for 5 seconds
STATION PROGRAM Pause Time Stations included in sequence (1-4)	008	No delay between station starts
Last station in the sequence (5)	15n	Station 1 restart is delayed 15 minutes after Station 5 is stopped
STATION PROGRAM Repeats "A" Group	С	Continuous cycled misting
PROGRAM Stop Time "A" Group	8.00P	Stop misting sequence at 8:00 P.M. today
STATION LIMIT NUMBER "A" Group	5	Stations 1 thru 5 in sequence (Stations 6 - 8 not in sequence)

*Can vary for each station included in the sequence.

4. Example Program: NURSERY MISTING

Sequential Station Operation - 1 Misting Rate Each Day (Cont'd)

Program Stations 5 thru 8:

FUNCTION	SET STATIONS AT	EACH STATION'S OPERATION
PROGŘAM Start Time	Midnight (Blank)	No starts

5. Example Program: NURSERY MISTING
Sequential Station Operation - 2 Misting Rates Each Day

Using an MIC-8, program Stations 1 thru 4 for Rate #1, and Stations 5 thru 8 for Rate #2. (To operate each valve on both rates, each valve is wired in pairs of stations - 1 & 5, 2 & 6, 3 & 7 and 4 & 8). Program Stations 1 thru 4 for Rate #1; program Stations 5 thru 8 for Rate #2.

Program Stations 1 thru 4 and A:

FUNCTION .	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start Stations 1 thru 8	0	Starts misting today
CYCLE DAYS Between Starts Stations 1 thru 8	0	Restarts misting everyday
PROGRAM Start Time Stations 1 thru 4	6.00A	Stations 1 thru 4 start at 6 A.M.
Stations 5 thru 8	12.00P	Stations 5 thru 8 start at 12 noon
"A" Group	Midnight (Blank)	Independent for Stations 1 thru 8
STATION PROGRAM Run Time	- 1	
Stations 1 thru 4	058	For Stations 1 thru 4, water ON for 5 seconds
Stations 5 thru 8	08S	For Stations 5 thru 8, water ON for 8 seconds
STATION PROGRAM Pause Time		
Stations 1 thru 3	00S	No delay between station starts
Station 4	15n	15 minute delay between stop of Station 4 and restart of Station 1
Stations 5 thru 7	00S	No delay between station starts
Station 8	12n	12 minute delay between stop of Station 8 and restart of Station 5
STATION PROGRAM Repeats Station 1 thru 8	С	Continuous cycle misting
PROGRAM Stop Time		
Stations 1 thru 4	12.00P	Stations 1 thru 4 stop at 12 noon
Stations 5 thru 8	6.00P	Stations 5 thru 8 stop at 6 P.M.
STATION LIMIT NUMBER		
"A" Group	8	Stations 1 thru 4 sequential; Stations 5 thru 8 sequential

6. Example Program:

GERMINATION
Simultaneous Independent Station Operation

Using an MIC-4, program each station to operate a continuous germination cycle; each station to operate on its own schedule, the same time as any or all other stations.

Program Stations 1 thru 4 and A:

FUNCTION	SET STATION AT	REASON
CYCLE DAYS Till Next Start Stations 1 thru 4	0*	Starts misting today
CYCLE DAYS Between Starts Stations 1 thru 4	0*	Restarts misting everyday
PROGRAM Start Time Stations 1 thru 4	6.00A*	Stations 1 thru 4 start at 6:00 A.M.
STATION "A"	Midnight (Blank)	Allows independent operation for Stations 1 thru 8
STATION PROGRAM Run Time Stations 1 thru 4	055*	Stations 1 thru 4, water ON for 5 seconds
STATION PROGRAM Pause Time Stations 1 thru 3	008	No delay between station starts
Station 4	15n	15 minute delay between stop of Station 4 and restart of Station 1
STATION PROGRAM Repeats STation 1 thru 4	c	Continuous cycle misting
PROGRAM Stop Time Stations 1 thru 4	12.00P	Stations 1 thru 4 stop at 12 noon
STATION LIMIT NUMBER		Simultaneous, independent

^{*}Can vary for each station (1 thru 4)

7. Example Program: GERMINATION

Sequential Station Operation

Using an MIC-8, program Stations 1 thru 6 to operate sequentially, a continuous germination cycle; program Stations 7 and 8 to not operate.

Program Stations 1 thru 8 and A:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start "A" Group	0	Germination cycle starts same day
CYCLE DAYS Between Starts "A" Group	, 0	Germination cycle restarts everyday
PROGRAM Start Time Stations in Sequence (1-6) Stations 7 & 8	Midnight (Blank) Midnight	No independent starts No operation
"A" Group	7. 00A	Germination cycle starts at 7 A.M.
STATION PROGRAM Run Time Stations 1 - 6	205*	on start days Water ON for 20 seconds
STATION PROGRAM Pause Time Stations 1 - 5	00S	No delay between station starts
Station 6 (last station in sequence)	20n	Station 1 restarts 20 minutes after station 6 stops
STATION PROGRAM Repeats "A" Group	С,	Germination cycle repeats continuously
PROGRAM Stop Time "A" Group	6.15P	Germination cycles stop at 6:15 P.M
STATION LIMIT NUMBER "A" Group	6	Stations 1 thru 6 in germination sequence

Example Program: GERMINATION - Sequential Station Operation (Cont'd)

Program stations that will not operate (7 and 8)

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
PROGRAM Start Time Stations 7 and 8	Midnight (Blank)	No operation

8. Example Program: FERTILIZER INJECTION Sequential Station Operation, Simultaneous Independent Mode

With an MIC-4, use Stations 1 thru 3 for irrigation; use Station 4 for for fertilizer injection.

Program Stations 1 thru 3 and A:

FUNCTION	SET STATION AT	REASON
CYCLE DAYS Till Next Start	2	Start irrigation cycle in 2 days
CYCLE DAYS Between Starts "A" Group	1	Irrigation cycle every other day
PROGRAM Start Time Stations 1 - 3	Midnight (Blank)	No independent starts
"A" Group	6.00A	Start at 6:00 A.M.
STATION PROGRAM Run Time Stations 1 - 3	4h	Each station has water ON for 4 hours
STATION PROGRAM Pause Time Stations 1 - 3	008	No pause between stations
STATION PROGRAM Repeats "A" Group	0	No repeats
PROGRAM Stop Time "A" Group	Midnight (Blank)	No stop time
STATION LIMIT NUMBER "A" Group	3	Stations 1 thr 3 in the irrigation sequence.

Example Program 8 continued on next page.

Example Program: FERTILIZER INJECTION Sequential Station Operation, Simultaneous Independent Mode (Cont'd)

It is necessary to prepare a timing diagram of the irrigation stations to determine the Start Time, Run Time and Pause Time of the fertilizer station.

TIME OF DAY

	1 1 1 1 1 1 1 1.
STATION 1	- AUN TIME - 1 - DEF TIME
STATION 2	OFF TIME - - PUN TIME - - CFF TIME
STATION 3	
STATION 4	F - PAUSE - F - PAUSE - F - CFF

Program Fertilizer Injection Schedule (Station 4)

FUNCT ION	SET STATION AT	REASON
CYCLE DAYS Till Next Start Station 4	2	Start injection cycle in 2 days (same as irrigation schedule)
CYCLE DAYS Between Starts Station 4	1	Injection cycle every other day (same as irrigation schedule
PROGRAM Start Time Station 4	7.00 A	Start fertilizer injection 7 A.M (1 hour after Station 1 starts)
STATION PROGRAM Run Time Station 4	30n	Inject fertilizer for 30 minutes
STATION PROGRAM Pause Time Station 4	3.5h	Pause for 3.5 hours (fertilizer injection restarts 1 hour after Station 2 starts, and 1 hour after Station.3 starts
STATION PROGRAM Repeats Station 4	2	Fertilizer injection restarts twice - with Station 2 irrigatio
PROGRAM Stop Time Station 4	Midnight (Blank)	and with Station 3 irrigation. No stop time

9. Example Program: FILTER BACKFLUSH Sequential Station Operation Mode

With an MIC-8, use Stations 1 thru 4 for sequential filter backflushing, and use Stations 5 thru 8 for sequential irrigation.

Program Stations 5 thru 8:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start Stations 5 thru 8	2*	Start irrigating in 2 days*
CYCLE DAYS Between Starts Stations 5 thru 8	6*	Irrigate once a week*
PROGRAM Start Time Station 5	8. 00A	Start irrigation schedule
Station 6	11.00A ***	Start Station 6 at the stop of Station 5***
Station 7	2.00P ***	Start Station 7 at the stop of Station 6***
Station 8	5.00P ***	Start Station 8 at the stop of Station 7***
STATION PROGRAM Run Time	3h **	Run time 3 hours**
STATION PROGRAM Pause Time	00S**	No pause needed with no repeats
STATION PROGRAM Repeats	0**	No repeats**
PROGRAM Stop Time	Midnight (Blank)	No Stop Time

*Must be the same for Stations 5 thru 8

**Can vary for Stations 5 thru 8

***Start time is determined by adding the prior station's Run Time to that station's Start Time

Example Program: FILTER BACKFLUSH - Sequential Station Operation Mode (Cont'd)
Program Backflush Cycle (Stations 1 thru 4 and A):

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start	2	Start backflushing cycle same day as irrigation
CYCLE DAYS Between Starts "A" Group	6	Operate backflushing cycle same day as irrigation
PROGRAM Start Time Stations 1 - 4 "A" Group	Midnight (Blank) 8.00A	No independent starts Start backflushing cycle same time as first irrigation starts (8:00 A.M.)
STATION PROGRAM Run Time Stations 1 - 4	01n	Backflush for 1 minute
STATION PROGRAM Pause Time Stations 1 - 3	2n	2 minute delay between backflushes
Station 4 (last station in sequence)	2h	2 hours delay until backflush cycle restarts
STATION PROGRAM Repeats "A" Group	С	Repeat backflush cycle continuously until Stop Time
PROGRAM Stop Time "A" Group	3.00P	Stop backflush cycle at the end of last irrigation station schedule (8:00 P.M.)
STATION LIMIT NUMBER "A" Group	4	Stations 1 thru 4 in the backflush sequence controlled by A

10. Example Program: DRIP IRRIGATION Simultaneous Independent Station Operation

The MIC controllers are particularly suited for automated drip systems. Their long run times (up to 60 hours per set) and simultaneous operation (up to all stations on at once) ideally fit the requirements of drip systems.

Using an MIC-4, program all 4 stations to operate a drip system with long run times.

Program Stations 1 thru 4 and A:

FUNCTION	SET STATION AT	EACH STATION'S OPERATION
CYCLE DAYS Till Next Start Stations 1 thru 4	1*	Start first irrigation next day*
CYCLE DAYS Between Starts	* -1	15 · E·
Stations 1 thru 4	13*	Restart irrigation every 14 days*
PROGRAM Start Time		
Stations 1 thru 4	6. 00A	Start irrigation at 6:00 A.M. on start days*
"A" Group	Midnight (Blank)	Independent station starts.
STATION PROGRAM Run Time		
Stations 1 thru 4	36h*	Water ON for 36 hours*
STATION PROGRAM Pause Time		
Stations 1 thru 4	00S*	No pause time*
STATION PROGRAM Repeats		
Stations 1 thru 4	0*	No repeats*
PROGRAM Stop Time		
Stations 1 thru 4	Midnight	No Stop Time
	(Blank)*	Run Time exceeds 23 3/4 hours*
STATION LIMIT NUMBER		
"A" Group	1	All stations may operate
		simultaneously

^{*}Can vary with each station (1 thru 4)

11. Example Program: DRIP IRRIGATION with WATER BUDGET (refer to Example Program 10).

Water Budget is an easy way to change all Run Times the same percentage with one program value change.

Using Example Program 10, assume a dry spell which requires 20% more water.

Program Water Budget:

FUNCTION	VALUE SET AT	EACH STATION'S OPERATION		
Water Budget	120%	Water ON time 43 hours		
	ls			

Note: In Example Program 10, the Run Time (water ON time) was set at 36 hours. The maximum Run Time per start is 60 hours. If the Water Budget is set at 150%, the actual water ON time is 54 hours. If the Water Budget is set at 160% or higher, the actual water ON time is limited to 60 hours.

TROUBLESHOOTING PROCEDURES

PROBLEM	POSSIBLE CAUSE	TEST & SOLUTION
No display	No power to the controller	Check the main line input
	Transformer wires not connected to the PCB terminal strip	Check transformer wires
	Blown fuse inside the trans- former due to overload, over- heating or surge	Check voltages: Orn-orn = 26.5 volt AC Blue-blue = 11 volt AC
	None of the above	Contact Rain Bird Service Group
No outputs	Tripped circuit breaker	Reset circuit breaker and check each station for tripping the breaker due to overload or shorts
	Fault field wiring (common)	Check and correct
No output and last digit on display flashing	Controller in Auto/Off Mode	Press Auto/Off
Some outputs do not work	Faulty field wiring or output damaged by a surge (lightening)	Check output with another valve or contact Rain Bird Service Group
Display flashes and program is lost	Dead battery or battery clip not plugged in correctly or very unsteady main supply	Check battery and clip. Use transient suppressors in the main line.
Other problems		Check grounding of the cabinet.

Contact your Rain Bird Service Group

BLINKING DISPLAY INDICATORS

WHEN BLINKING

TIME (all digits)

CYCLE DAYS
Identifier "C"

RUN TIME Identifier "r"

PAUSE TIME Identifier "P"

REPEAT
Identifier "rP"

6th (rightmost) digit

MEANING

AC power is on. No water schedules are programmed.

- (1) Power connected but MIC has not yet been programmed, or
- (2) Power was off too long for back-up battery to save program. All schedules are lost.

Number of days until the next watering schedule start day for the station number displayed.

Run Time to go for the station number displayed.

Pause Time to go for station number displayed

Number of REPEATS to go for the station number displayed

AUTO/OFF mode key is OFF. No automatic starts.

MIC PROGRAMMING SHEET

STATION	DAYS DAYS BETWEEN TILL NEXT STARTS START	PROGRAM PROGRAM START STOP TIME TIME	PROGRAM RUN TIME	PROGRAM PAUSE TIME	PROGRAM REPEATS
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MIC PROGRAMMING SHEET

STATION	DAYS BETWEEN STARTS	DAYS TILL NEXT START	PROGRAM START TIME	PROGRAM STOP TIME	PROGRAM RUN TIME	PROGRAM PAUSE TIME	PROGRAM REPEATS	• • • • • • • • • • • • • • • • • • •	Security is to be in-
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