

VII. Advantage's Product Warranty

Advantage Controls, Inc. warrants control systems of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from date of shipment. Liability is limited to repair or replacement of any failed equipment or part proven defective in material or workmanship upon manufacturer's examination. Removal and installation costs are not included under this warranty. Manufacturer's liability shall never exceed the selling price of equipment or part in question.

Advantage disclaims all liability for damage its products caused by improper installation, maintenance, use or attempts to operate products beyond their intended functionality, intentionally or otherwise, or any unauthorized repair. Advantage is not responsible for damages, injuries or expense incurred through the use of its products.

The above warranty is in lieu of other warranties, either expressed or implied. No agent of ours is authorized to provide any warranty other than the above.

30 Day Billing Memo Policy

Advantage Controls, Inc. maintains a unique factory exchange program to ensure uninterrupted service with minimum downtime. If your controller malfunctions, call 1-800-743-7431, provide our technician with Model and Serial Number information. If he is unable to diagnose and solve your problem over the phone, a fully warranted replacement panel will be shipped, usually within 48 hours, on a 30 Day Billing Memo.

This service requires a purchase order and the replacement panel is billed to your regular account for payment.

The replacement panel will be billed at current list price for that model less any applicable resale discount. Upon return of your old panel, credit will be issued to your account at either 100% if your unit is in warranty or at 50% if your unit was out of warranty. The total charge for this exchange is 50% of the current list price for that panel with all resale discounts applying. The exchange covers only the panel. Electrode and enclosure are not included.

Dual Biocide Timers Models BC-2 and BC-2A Table of Contents

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I. Introduction

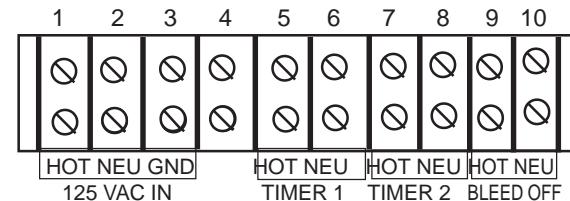
The BC Series seven day timers are a family of three separate models designed to automate the feeding of a biocide chemical into a cooling tower. The simplest and least expensive model is the BC-1. The BC-1 has a single dial which is used to read and set the day of the week and time of day. Pull out tabs are used to operate a chemical pump for a minimum of a two hour period.

The Model BC-2 offers a more flexible adjustment of pump run times. The pump can operate for as little as ten minutes, or as long as three hours and ten minutes. Run times are adjustable in 10 minute increments. The model BC-2 also has the capability of alternating between two different biocides. This feature is enabled by a circuit board mounted switch.

The Model BC-2A adds an independently adjustable bleed lock out timer circuit. This circuit can be used to interrupt power to a conductivity controller for the purpose of preventing bleed off during and after biocide additions.

VI. OPTIONS

OPTION CODE	DESCRIPTION
5	Mounted flow switch. Mounts in the circulation loop of a cooling tower. Prevents the output relay from operating unless at least one gallon per minute of flow is going through the flow switch.
W-1	25 amp power relay, Biocide A only.
W-2	Dual 25 amp power relays, Biocide A and Biocide B.
3-	Conduit Wiring



B. Start Up BC-2A

1. Follow the start up procedure for the BC-2 above.
2. The BC-2A provides an additional output plug and timer setting to power a conductivity controller. This outlet is powered at all times, except during programmed bleed lock out periods. To program, use the BLEED LOCK OUT section. The bleed lock out timer will start at the same time as the feed timer. Each switch is marked for the amount of time it will lock out (interrupt power) to the conductivity controller when the switch is placed in the ON (up) position.

For one hour of bleed lock out following one hour of biocide feed, set the bleed lock out timer switches 3 (40 minutes) and 4 (80 minutes) in the ON (up) position.

V. OUTPUT TEST

A. BC-2, BC-2A

The test procedure will activate both the FEED TIMER (and on the BC-2A the LOCK OUT TIMER). The timer output plug (A or B) will be activated during a test, the BLEED output will be off during a test.

To TEST. When the FEED TIMER LED is off, push and hold the TEST BUTTON for 2 seconds. This will start the FEED TIMER cycle, and power the output. To stop the feed cycle, push the RESET BUTTON.

Note: If the BC-2 or BC-2A is set up to alternate biocides (circuit board switch in ON position), pressing the test button will start the timer cycle for whichever output is scheduled to start next. For example, if the last feed cycle was for output A, pressing TEST will start the timer and power output B. The next time the timer activates, either with the TEST switch or the clock dial, OUTPUT A will again be active. To insure that this does not affect the sequencing of the two outputs, always test both output A and B. To do this, press the test switch (when the FEED TIMER LED is not illuminated), The PUMP A or B LED will illuminate. Then press the RESET BUTTON, wait 5 seconds, then press the TEST BUTTON again, and the other output will be active. To stop the feed timer press RESET and the unit is ready for normal operation.

II. Installation

A. Power Requirements

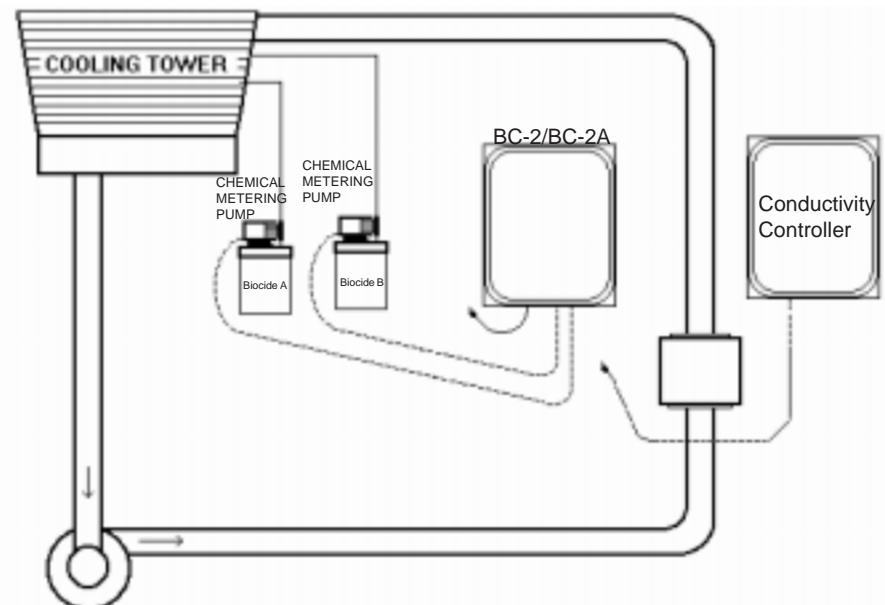
The Model BC-2 and BC-2A timers are furnished in a prewired configuration (US only) which provides an 8 foot cord with molded plug for input power and 11" output cords with molded female plugs for the connection of controlled devices. The unit is furnished in a NEMA 4X type thermoplastic enclosure with a padlockable Lexan viewing door which may be installed in almost any environment. Each BC-2 and BC-2A is built to give years of trouble free service.

Plug the unit into a grounded outlet, 115 VAC (+/-20 VAC) 50/60 Hz, 12 V. One relay supplies power to the female outlets. The rating of this relay is 12 A (resistive).

B. Mounting Instructions.

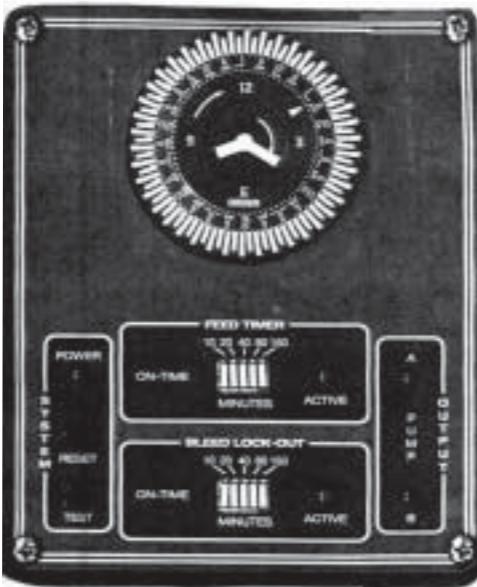
The Models BC-2 and BC-2A are completely prewired for ease of installation. Select a mounting location convenient to electrical connections and accessible to the operator.

Mount the controller on the wall. Use the enclosed mounting template for aid in mounting the controller. Position so operator has access to the unit and a clear view of the front panel through the cover of the controller.



C. Typical Installation Models BC-2 and BC-2A

III. Front Panel



A. BC-2A Front Panel

B. Description

POWER LED

Lights whenever the unit is plugged in to AC power.

PUMP A LED

Lights whenever power is supplied to the Pump A outlet.

PUMP B LED

Lights whenever power is supplied to the Pump B outlet.

FEED TIMER ACTIVE LED

Lights whenever the feed timer is running.

BLEED LOCK-OUT ACTIVE LED

Lights whenever the bleed lock out timer is running. (BC-2A only)

SYSTEM RESET BUTTON Used to restart the time cycle if the timer is already running. **NOTE:** If the alternator switch on the circuit board is in the ON position, pushing the reset button while the FEED TIMER is running will cause the timer to alternate or change the output to the other pump. Example: Timer is ON, and the pump A LED is on. Pushing the reset button will switch the output to PUMP B and restart the feed timer cycle. Pushing reset when the FEED TIMER is off will have no effect on unit operation.

SYSTEM TEST BUTTON Used to check timer and output operations. When the FEED TIMER is off, pressing the test button will start a feed cycle. If the timer last operated output A, pushing the test button will start the FEED TIMER on output B. If the timer last operated on output B, pushing the test button will start the FEED TIMER on output A. The test button will run the FEED TIMER for the amount of time set.

NOTE: The TEST BUTTON has no effect if the FEED TIMER is already on when the button is pushed.

IV. Start Up

A. Start up BC-2

1. Turn the timer (large) dial clockwise until the current day of the week aligns with the white arrow on the upper portion of the timer dial.
2. Turn the minute hand clockwise until the clock hands read the current time, AM or PM.
3. Set the start time(s) for the timer by pulling out the white tab(s) on the outside of the timer dial.
4. Go to the FEED TIMER section of the panel. Use the rocker switches to set the run time for the pump. Each switch is marked for the amount of time it will run the pump if placed in the ON (up) position.

EXAMPLE: For a 90 minute feed time, set switch 1 and switch 4 to the up position.

5. The unit is set up for alternating biocide operations, If you wish to deactivate the alternating function, it will be necessary to adjust a circuit board mounted switch. To accomplish this, disconnect power and remove the four screws holding the front panel into the enclosure. Pull the top part of the panel away from the enclosure to allow circuit board access. Locate the red switch on the top left side of the circuit board (just below the mounting screw). To deactivate the alternating function, place the switch in the OFF position. Replace front panel and continue.
6. Supply power to the unit. Plug in the appropriate chemical pump(s) into the marked outlets on the bottom of the enclosure.