User manual

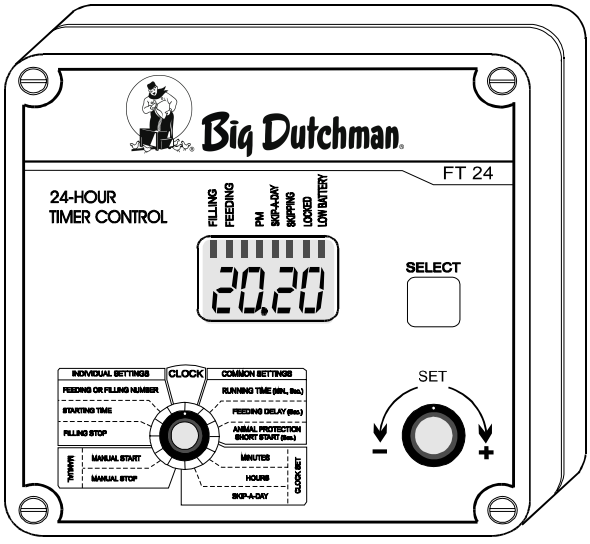
24h Timer Control FT 24

Code-No. 99-97-1980

Edition: 12/2016

FT-24

24-HOUR TIMER CONTROL



FT-24: 24-HOUR TIMER CONTROL

❶ INTRODUCTION

The FT-24 is a timer designed to control farm equipment. It uses an internal clock to operate 2 outputs with up to 12 different operation cycles each. At each cycle start, the timer activates a dry contact. Manual start/stop and skip-a-day functions are included. A four-digit display and a push-button make programming easy. Additional features include:

- a battery back-up for keeping time in case of a power failure
- overload protection on the output
- a 115/230 VAC - 50/60Hz power supply
- an alarm output
- the unit can be connected to a computer communications module

❷ PRECAUTIONS

Although fuses at the input and outputs of the controller protect its circuits in case of an overload or overvoltage, we recommend installing an additional protection device on the controller's supply circuit.

The room temperature where the controller is located MUST ALWAYS REMAIN BETWEEN 32°F AND 104°F (0°C TO 40°C).

To avoid exposing the controller to harmful gases or excessive humidity, it is preferable to install it in a corridor.

DO NOT SPRAY WATER ON THE CONTROLLER

❸ MOUNTING INSTRUCTIONS

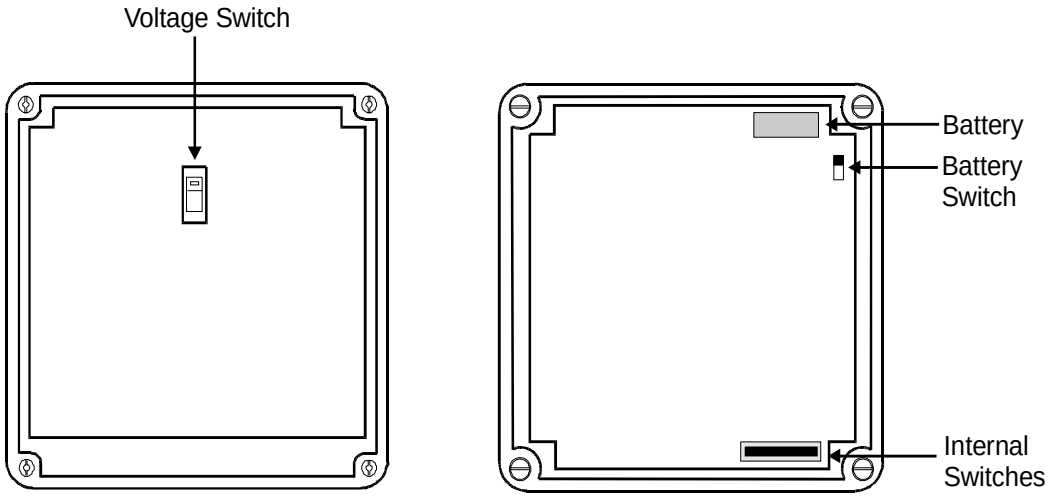
Remove the four screws on the front cover and lift the cover. Mount the enclosure on the wall using three screws. Be sure the electrical knockouts are at the bottom of the enclosure in order to prevent water from entering the controller. Insert the screws in the mounting holes provided in three corners of the enclosure and tighten. Fasten the three black caps provided with the controller onto the three mounting holes.

❹ CONNECTIONS

To connect the controller, refer to the wiring diagram enclosed with this user's manual.

⇨ Set the voltage switch to the appropriate voltage.

⇨ Use the electrical knockouts provided at the bottom of the enclosure. Do not make additional holes in the enclosure, particularly on the side of the enclosure when using a computer communications module.



Inside Enclosure

Inside Cover

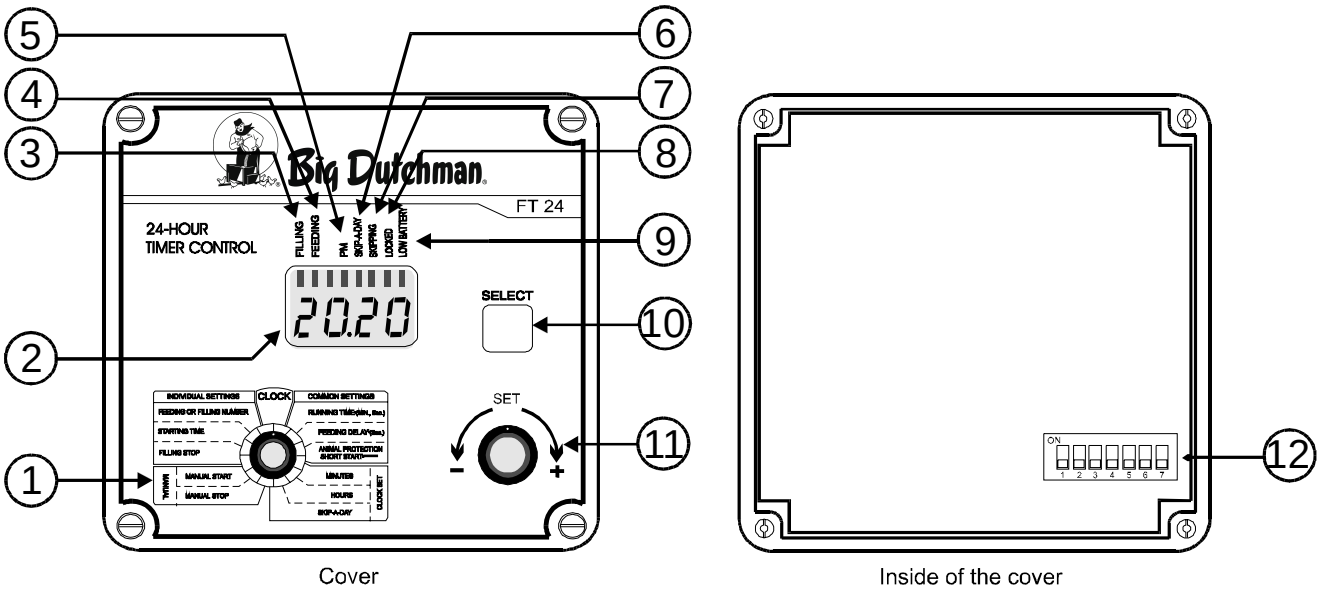
⇨ The switch near the 1/2AA Lithium battery located inside the cover must be turned on before you plug the timer into a power outlet. If the LOW BATTERY pilot light turns on when you first turn the unit on, return the unit to your dealer.

⇨ Two types of alarms are currently available on the market. The first type is activated when current is cut off at the source; the other is activated when current is supplied to the input. Use the NO terminal for an alarm of the first type; otherwise use the NC terminal.

WARNING

ALL WIRING MUST BE DONE BY AN AUTHORIZED ELECTRICIAN AND MUST COMPLY WITH APPLICABLE CODES, LAWS AND REGULATIONS. BE SURE POWER IS OFF BEFORE DOING ANY WIRING TO AVOID ELECTRICAL SHOCKS AND EQUIPMENT DAMAGE.

❺ LOCATION OF THE CONTROLS



Cover

Front

Inside of the cover

Inside Cover

1 - Function Selection Knob: Used to select a function.

2 - Digital Display: Displays the clock time and other values.

3 - Filler Pilot Light: Turns on when the filler is activated.

4 - Feeder Pilot Light: Turns on when the feeder is activated.

5 - PM Pilot Light: Turns on when the current time is PM in the 12H mode.

6 - Skip-A-Day Pilot Light: Turns on when the skip-a-day feature is activated.

7 - Skipping Pilot Light: Turns on when the current day is being skipped.

8 - Locked Parameter Pilot Light: Turns on when the parameters are locked.

9 - Low Battery Pilot Light: Turns on when the battery is low.

10 - Push-button: Used for programming timer cycles and storing parameters.

11 - Adjustment Knob: Used to set parameters values.

12 - Internal Switches:

1 - Locked / Unlocked parameters: When this switch is ON, the timer parameters are locked and can only be displayed (except clock time).

2 - 24HR / 12HR time: When this switch is ON, the display shows 24-hour time. Otherwise, the display shows 12 hour time (AM / PM).

❻ USING THE CONTROLLER

THE DISPLAY

A flashing value on the display means the value can be modified using the adjustment knob. Otherwise, the parameter cannot be modified. If the locked parameter switch (Dipswitch # 1) is in the ON position, no parameters can be modified (except clock time). If after 10 seconds, no action is taken to modify a flashing value, the display stops flashing and the timer returns to a display mode. If any changes were made within this time period, they will be recorded in permanent memory.

THE CLOCK

The FT-24 has an internal clock used for programming the timer cycles. To display the current time, turn the selection knob to the **CLOCK** position. If the internal switch #2 is OFF, the time is displayed in 12-hour format. In this case, the PM LED turns on to show PM time.

SETTING THE CLOCK

- Set the selection knob to the **CLOCK SET** - **HOURS** position. The current time is displayed with the hours flashing.
- Use the adjustment knob to set the hours. If you are using 12-hour time, make sure the PM LED is properly set.
- Set the selection knob the the CLOCK SET - MINUTES position. The current time is displayed with the minutes flashing.
- Use the adjustment knob to set the minutes.
- The clock is now set. Note that changing the hours or minutes resets the seconds counter to zero.

TIMER OPERATION

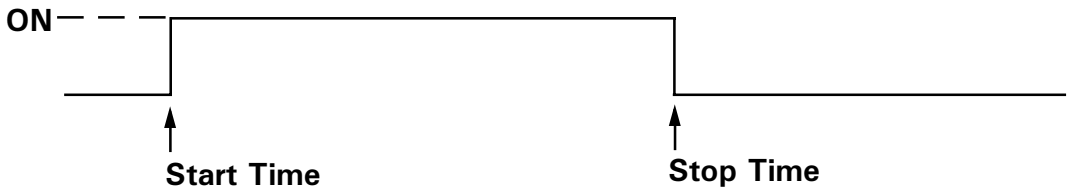
Two independent timer outputs can be activated by the FT-24, one for filling and one for feeding. Each output can have up to twelve different cycles or channels. Each cycle can be enabled or disabled individually. In addition, the Skip-a-day feature allows you to activate the cycles every other day.

Filling cycles are defined using a Start Time and a Stop Time. When the clock reaches the Start Time, the filling output is activated until the Stop Time is reached.

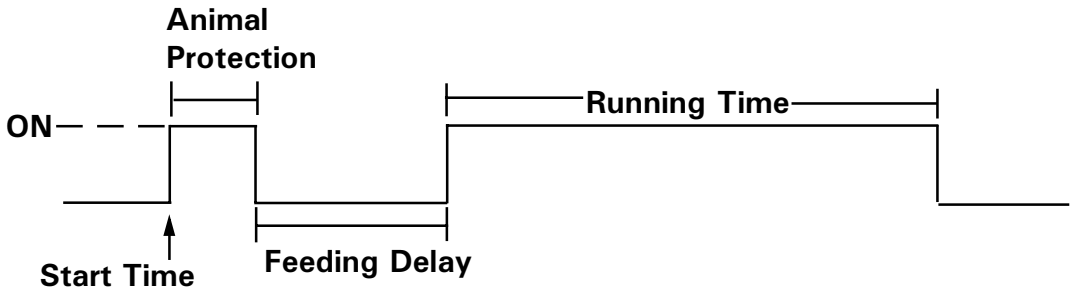
Feeding cycles are defined using a Start Time and a Running Time. The running time is common to all 12 feeding cycles. When the clock reaches the Start Time, the feeding output is activated until the Running Time has elapsed. Two other parameters, common to all cycles,

can be incorporated into a feeding cycle: an Animal Protection Short Start and a Feeding Delay. When the clock reaches the Start Time, the feeding output is activated briefly according to the value of the Animal Protection Short Start. The timer then waits for the Feeding Delay to elapse. Following this, the timer output is activated until the Running Time has elapsed. If the Animal Protection and Feeding Delay parameters are not needed, they should be set to zero.

Filling Cycle



Feeding Cycle



Example of Cycle Definitions

CYCLE #	FILLING Start/Stop	FEEDING Start/Running
1	6:30 / 6:45	6:40 / 10 min.
2	10:45 / 11:00	11:00 / 10 min.
3	12:30 / 12:50	1:00 / 10 min.
4	14:30 / 14:40	14:45 / 10 min.
5	17:00 / 17:20	17:25 / 10 min.
6	20:00 / 20:15	20:20 / 10 min.

NOTES:

(i) If two filling cycles or two feeding cycles have identical start times, only one is activated.

(ii) If one feeding cycle is defined to start while another feeding cycle is already activated, the second cycle will start once the first one is completed and will be activated for the entire duration of the Running Time.

(iii) If a filling cycle is defined to start while another filling cycle is already activated, only the portion that exceeds the stop time of the first cycle will be executed.

FILLING CYCLE SETTINGS

DEFINING THE START AND STOP TIME

- Turn the selection knob to **FEEDING OR FILLING NUMBER**. The display shows the current feeding (**Fd**) or filling (**FL**) cycle number.
- Use the adjustment knob to select a cycle number beginning with **FL**. Note that when you stop turning the adjustment knob momentarily, the cycle number alternates with the current state of the cycle (On/Off).
- Use the push-button to change the current on-off state of the cycle.
- Turn the selection knob to **STARTING TIME**. The currently defined starting time for the selected cycle is displayed.
- Press the push-button once. The hours start flashing.
- Use the adjustment knob to set the hours value.
- Press the push-button once again. The minutes start flashing.
- Use the adjustment knob to set the minutes.
- Press the push-button to store the new value in memory.
- Turn the selection knob to **FILLING STOP**. The currently defined stop time for the selected cycle is displayed. Note that if you have selected a feeding cycle number, the display shows "— — — —" meaning you cannot define a stop time.
- Press the push-button once. The hours start flashing.
- Use the adjustment knob to set the hours value.
- Press the push-button once again. The minutes start flashing.
- Use the adjustment knob to set the minutes.
- Press the push-button to store the new value in memory.

FEEDING CYCLE SETTINGS

DEFINING THE START TIME

- Turn the selection knob to **FEEDING OR FILLING NUMBER**. The display shows the current feeding (**Fd**) or filling (**FL**) cycle number.
- Use the adjustment knob to select a cycle number beginning with **Fd**. Note that when you stop turning the adjustment knob momentarily, the cycle number alternates with the current state of the cycle (On/Off).
- Use the push-button to change the current on-off state of the cycle.
- Turn the selection knob to **STARTING TIME**. The currently defined starting time for the selected cycle is displayed.
- Press the push-button once. The hours start flashing.
- Use the adjustment knob to set the hours value.
- Press the push-button once again. The minutes start flashing.
- Use the adjustment knob to set the minutes.
- Press the push-button to store the new value in memory.

NOTE: If you turn the selection knob to STOP TIME after a feeding cycle number has been selected, the display will show "— — — —" to indicate that feeding cycles do not have stop times.

DEFINING THE RUNNING TIME

- Turn the selection knob to **RUNNING TIME**. The current running time is displayed.
- Press the push-button. The minutes start flashing.
- Use the adjustment knob to set the minutes. Values range from 0 to 99 minutes.
- Press the push-button. The seconds start flashing.
- Use the adjustment knob to set the seconds value.
- Press the push-button to store the new value in memory. Note that this value applies to all feeding cycles.

DEFINING THE FEEDING DELAY

- Turn the selection knob to **FEEDING DELAY**. The current feeding delay is displayed.
- Press the push-button. The value starts flashing.
- Use the adjustment knob to set the delay. Values range from 0 to 99 seconds.
- Press the push-button to store the new value in memory. Note that this value applies to all feeding cycles.

DEFINING THE ANIMAL PROTECTION SHORT START

- Turn the selection knob to **ANIMAL PROTECTION**. The current animal protection short start is displayed.
- Press the push-button. The value starts flashing.
- Use the adjustment knob to set the delay. Values range from 0 to 99 seconds.
- Press the push-button to store the new value in memory. Note that this value applies to all feeding cycles.

MANUAL MODE

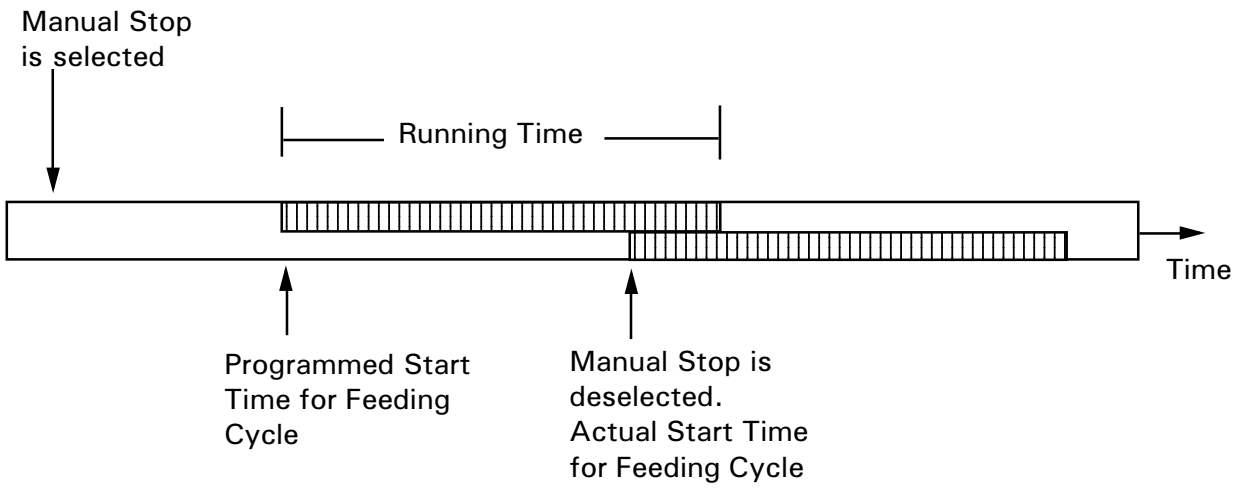
MANUAL START

- Turn the selection knob to **MANUAL START**. The display shows **Fd** and counts down from 5 seconds.
- Use the adjustment knob to select Feeding (**Fd**) or Filling (**FL**). Changing the display resets the 5-second countdown. Once the 5 seconds have elapsed, the corresponding output is activated. When the feeder is activated, the display flashes **Feed**. When the filler is activated, the display flashes **FILL**. If the Filler was selected, it will stop when the position of the selection knob is changed. If the Feeder was selected, it will stop when the cycle time has elapsed. If you leave the selection knob in this position, another cycle will be activated immediately after.

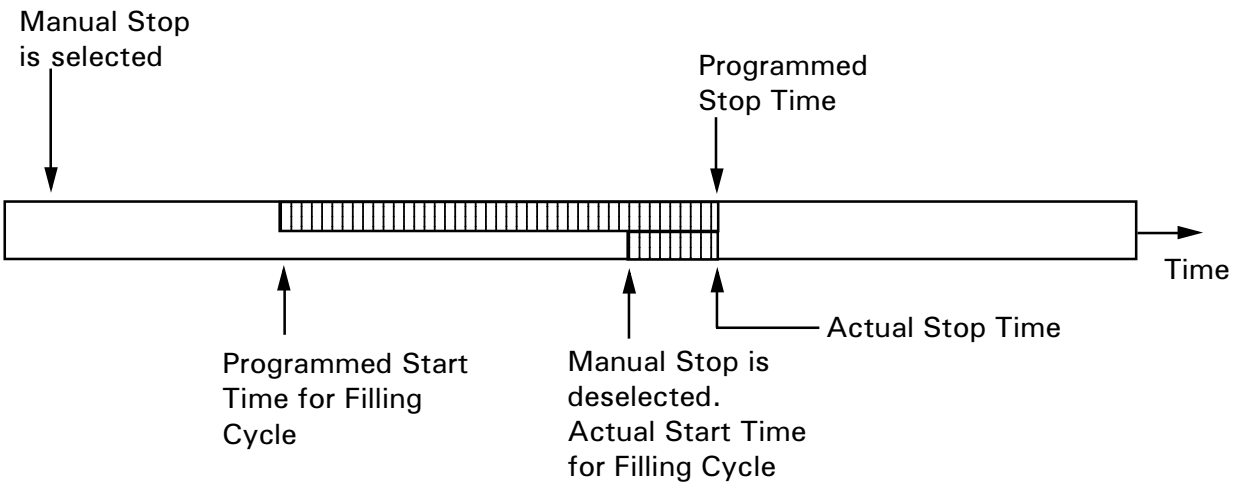
MANUAL STOP

- Turn the selection knob to **MANUAL STOP**. The display counts down from 5 seconds. After 5 seconds have elapsed, all activated cycles are stopped and the display shows **STOP**. If both outputs are activated, they are deactivated simultaneously. If you leave the selection knob in this position, no new cycles planned at a later time are activated. To return to automatic mode, turn the selection knob to **CLOCK**. If you return to automatic mode inside a feeding cycle window, and if that cycle was not already activated previous to the manual stop, the cycle will be executed for the entire running time. In the case of a filling cycle, the cycle is activated until the appointed Stop Time. The two diagrams below sum up these cases.

Feeding Cycle:



Filling Cycle:



SKIP-A-DAY FUNCTION

This feature allows you to operate the cycles only every other day. You can choose to start skipping immediately or on the following day (at midnight). If you choose to start skipping immediately and a cycle is currently activated, the skipping feature will take effect after the running time of the current cycle has elapsed or until the Stop Time is reached. If you disable the Skip-a-day function inside a feeding cycle window, the cycle will be activated for the entire duration of the Running Time (see the diagram above where this is applied to the Manual Stop function). Note that the skip-a-day feature applies to both filling and feeding cycles.

USING THE SKIP-A-DAY FUNCTION

- Turn the selection knob to **SKIP-A-DAY**. The current On/Off status of the Skip-a-day function is displayed.
- Use the adjustment knob to enable or disable the Skip-a-day function. Turn the knob to the right to enable, or to the left to disable.
- If you have enabled the Skip-a-day function, use the push-button to determine when to start skipping. Turn on the SKIPPING LED to start skipping immediately. Turn off the SKIPPING LED to start skipping on the following day.

❼ ALARM CONDITIONS

An alarm is set off when one of the following situations occurs:

(i) the battery is low
(ii) the permanent memory chip is not working properly
(iii) a power failure occurs
(iv) the microprocessor is defective.

❽ BACK-UP BATTERY

A 1/2AA lithium battery is included with the timer. It is used to power the internal clock in the event of a power failure. None of the other timer functions will operate if this happens. When power is restored, the timer will resume activation of the cycles exactly where it left off when the power failed. For example, a cycle that was already activated will be resumed for the remainder of the Running Time.

To continue operating the timer when a power failure occurs, a 12VDC input is included (see wiring diagram for hookup). If you use a rechargeable battery, **NEVER RECHARGE WHEN THE BATTERY IS CONNECTED TO THE UNIT**.

❾ TECHNICAL SPECIFICATIONS

Supply: 115/230 VAC, 50/60 Hz, overload and overvoltage protection fuse F6-1A fast blow.

12 VDC for AC back-up supply; can activate outputs and alarm if supplied with DC back up voltage.

Filling Output : ON-OFF output, 115/230 VAC, 50/60 Hz, 30 VDC, 6A motor output, 10A RES, fuse F1-10A slow blow.

Feeding Output: ON-OFF output, 115/230 VAC, 50/60 Hz, 30 VDC, 6A motor output, 10A RES, fuse F2-10A slow blow.

Alarm: ON-OFF output, 115/230 VAC, 50/60 Hz, 30 VDC, 3A, fuse F4-3A slow blow.

Enclosure: ABS, moisture and dust-tight.

The room temperature where the controller is located MUST ALWAYS REMAIN BETWEEN 32° AND 104°F (0° AND 40°C).

⑩ TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
The display doesn't work.	The circuit breaker at the service panel is off or tripped. The wiring is incorrect. The F6 input fuse is blown. The voltage selector switch is in the wrong position. The display board interconnect cable is unplugged from the power supply board.	Reset the circuit breaker. Correct the wiring. Replace the fuse. Set the switch to the correct position. Plug the cable in firmly.
The timer seems to be working but the equipment is not running.	The wiring is incorrect or loose. The F1 or F2 output fuse is blown.	Check the wiring. Replace the fuse.
The Low Battery pilot light turns on.	The battery is low. The battery has been turned OFF.	Unplug the unit. Turn off the battery. Turn the battery on and plug the unit in. Note that the clock time may be lost. If the pilot light is still on, return the unit to your dealer. Unplug the unit. Turn the battery on and plug the unit in. Note that the clock time may be lost.
The display is steady and shows the letters "EEPR". When this happens, all cycle activity is stopped.	The permanent memory is not functioning properly.	Unplug the unit. Turn off the battery and turn it back on. Plug the unit in. If the problem persists, contact your dealer. Note that this may erase your programming.
The display flashes the letters "EEPR". When this happens, all cycle activity is stopped.	The permanent memory is not functioning properly.	Try resetting the system by holding the push-button down for 5 seconds. Note that this may erase your programming.

11 Wiring diagram