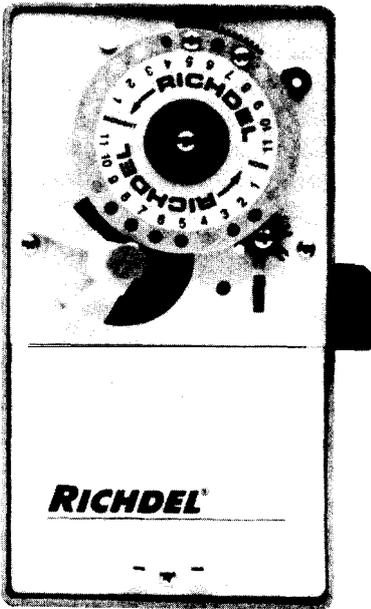


Richdel

300 SERIES MECHANICAL CONTROLLERS



INSTALLATION AND OPERATING GUIDE
FOR ALL MODELS

INSTALLATION INSTRUCTIONS

The 300 Series Controllers are operated by electric motors and require 24 volts AC current from the plug-in or internal transformer to operate. Plug-in transformer models are not weather protected and must be installed indoors, (garage, work shed, etc.). Internal transformer models have a lockable weather resistant case and may be installed outdoors.

STEP 1: SELECT THE LOCATION

Plug-in transformer models: Install the controller in a convenient weather protected indoor location near a 120 volt household receptacle. Keep the controller door closed after adjustments to keep dust out. Internal transformer models: If the controller is installed outdoors, choose a location that is dry and away from direct water spray. A dry shaded location is best. Keep the controller door closed after adjustments to keep dust out.

STEP 2: MOUNT THE CONTROLLER

Plug-in transformer models: Screw a #8 flat or pan head screw into a wall at eye level, leaving the screw head extended about 1/8" Slip the keyhole opening in the back of the controller over the screw head and pull down. Open the controller door and install two additional screws in the lower wiring compartment holes to stabilize the controller.

Internal transformer models: Screw the enclosed wall hanger into the top backside of the controller. Screw a #8 flat or pan head screw into a wall at eye level, leaving the screw extended about 1/8". Place wall hanger over screw to hold the controller. Open the controller door and remove the lower wiring cover plate marked, CAUTION HIGH VOLTAGE. Install two additional screws in the lower wiring compartment holes to stabilize the controller.

STEP 3: WIRE THE TRANSFORMER

Plug-in transformer models: Connect the power cord between the controller and the transformer (the transformer must be used). Make sure the wires do not touch each other. If more length is needed, use a similar 16 or 18 gauge cord. Do not plug the transformer into a switched circuit. Internal transformer models: The 120 volt power wires to the transformer must be fed through conduit piping, whether the controller is installed indoors or outdoors. Assemble the conduit, bring the piping to the underside left hole. Secure the conduit to the controller by an appropriate conduit fastener. Use wire nuts to make the electrical connections. The green line is earth ground, the black is hot, the white wire is neutral. Replace the high voltage cover plate and screw- after connections are made.

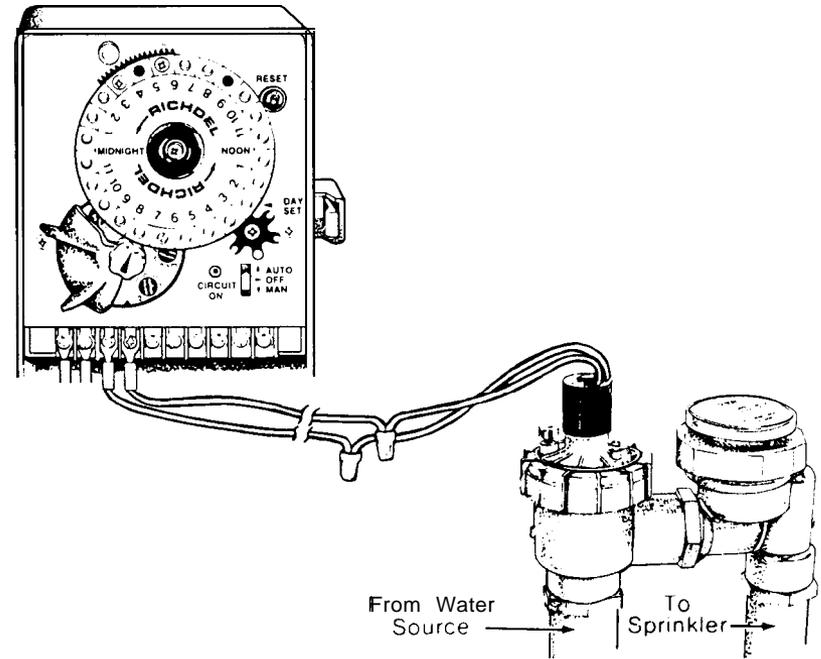
CAUTION: When wiring internal transformer models, switch the electrical power off at the circuit breaker panel before making connections.

Note: Due to varying regulations check local electrical codes.

STEP 4: WIRE THE VALVES

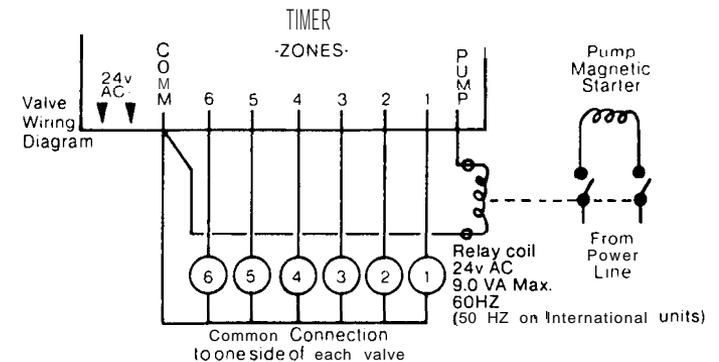
The wires from the valves to the controller can be placed underground alongside the pipes or in any area where they will not be exposed to damage. Use 18 gauge wire for runs up to 500 feet. Bring the valve wires back to the controller and up through the hole on the underside right, One wire from each valve returns to a station number on the controller, the other wire from each valve returns to the controller's common connection. If the valves are located together, join one wire from each valve and run a single common wire back to the controller's common connection. All wire connections should be soldered or joined with wire nuts and sealed with vinyl waterproof cement. Do not connect more than two valves to one circuit or valves that

require more than 1 amp current at 24 volts. An additional 24 volt pump terminal is provided to operate a motor starter relay if water is drawn from a pumped supply. The pump will operate only when the sprinklers are in use. See schematic.



Pump Starter Relay

If the water supply is obtained from a private source utilizing an electric pump, (well water, collection pool, etc.) a pump lead terminal has been provided for attaching a pump relay and will control an electric pump up to 2 HP at 240 volts. The pump will operate while the sprinklers are in use.



WARNING:

Stations cannot be set to 'off'. 5 minutes is the minimum run time. On unused stations, set run time to 5 minutes and place a jumper wire to an active station to prevent pump motor damage.

OPERATING INSTRUCTIONS

STEP 1: SET THE CURRENT TIME OF DAY

A. The zone selector knob (10) must be in detent (locked) position with the arrow pointing at the screw in the center of the time dial (2).

B. Turn the time dial counter-clockwise until the current time of day is next to the arrow on the selector knob. Caution: Do not turn the time dial clockwise.

STEP 2: SET THE WATERING DAYS SCHEDULE

Two skip-a-day wheels (5) are included with the timer. The 6-day spoke wheel (factory attached) is for watering by day interval. The 7-day spoke wheel included in the accessory pack, is for watering by days of the week.

A. Watering by day interval: Using the 6-spoke wheel, put skip-a-day pins (6) in the spokes for the days you do not want to water. Example: To water every other day, put a pin in every other spoke.

B. Watering by days of the week: Using the 7-spoke wheel, put skip-a-day pins in spokes for the days of the week you do not want to water. Example: To water on Mon. / Wed. / Fri. put four pins in for days, Tue. / Thurs. / Sat. / Sun.

C. After inserting the pins, turn the skip-a-day wheel clockwise until the spoke representing today sits on the grey colored day set button (4). A pin covering the day set button will prevent watering. If the tripper gear (1) has moved past the skip-a-day wheel put the spoke for tomorrow's watering on the day set button.

STEP 3: SET THE WATERING START TIME

The tripper gear (1) determines **the** time of day watering will occur. To change the tripper gear location, loosen the two screws and move it to the time of day you wish to water. If watering more than once a day, attach the repeat tripper (included in the accessory pack) for the first watering time of the day. The tripper gear with post is for the last watering time of the day.

STEP 4: SET THE RUN TIME FOR EACH ZONE

Zone running times can be individually adjusted to meet the needs of each watering area. From 5 minutes to 45 minutes for the four zone model and 5 minutes to 30 minutes for the six zone model.

A. Move the slide switch (9) to off. Turn the zone selector knob (10) to display each zones timing cam (7). Put a dime or screwdriver in the timing cam slot and align the small arrow with the running time desired.

B. After the run times are set, return the selector knob (10) to the detent position with the arrow pointing at the screw in the center of the time dial. The zone selector knob will lock into position.

C. Move the slide switch to auto (automatic run) or leave in the off position if no watering is desired.

MANUAL WATERING

A. Move the slide switch (9) to off. Turn the zone selector knob (10) until the number on the wheel aligns with the dot (11) on the chassis (above zone #4 screw). Move the slide switch to manual. The circuit light will turn on to indicate zone operation.

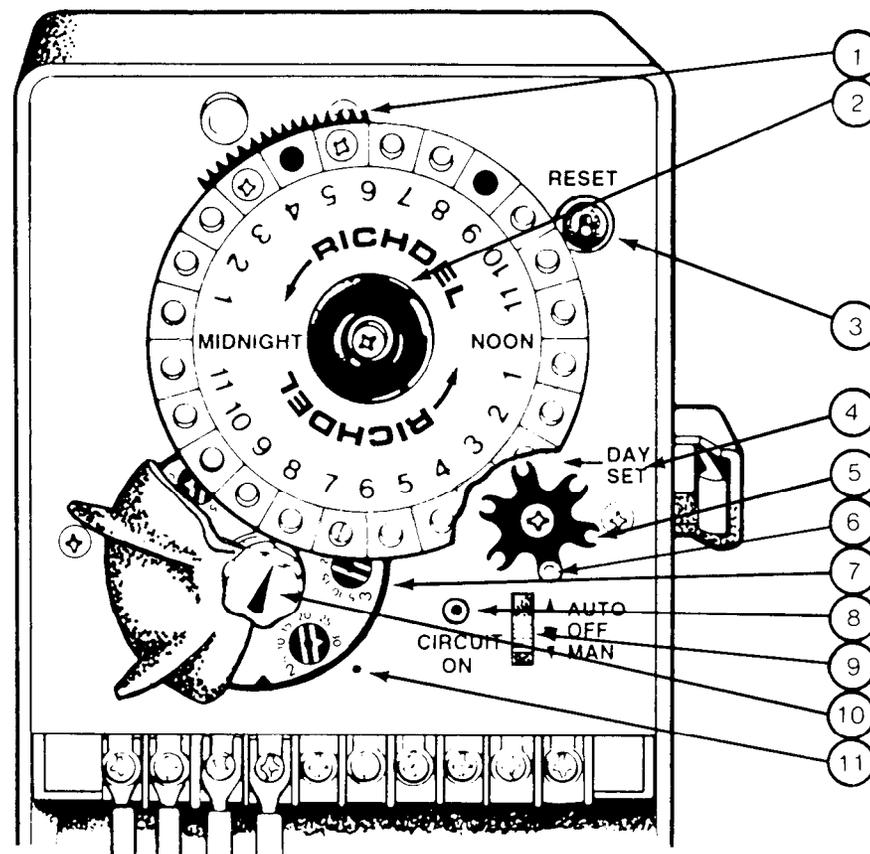
B. Following manual operation, the zone selector knob (10) MUST be returned to detent position with the arrow pointing at the screw in the center of the time dial. Return the slide switch to the auto or off position.

SYSTEM SHUT-OFF

To prevent watering, move the slide switch to off. The clock will continue to keep time but will not operate the valves.

CIRCUIT BREAKER PROTECTION

A tripped circuit breaker (3) indicates an electrical problem in the valve wiring connection or solenoid. If the circuit breaker trips the zone selector will stop at the problem zone. After repairs, push the circuit breaker button (3) in to reset.



TROUBLE -SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
One or more valves do not water	<ol style="list-style-type: none"> 1. Faulty solenoid 2. Poor wire connection 3. Possible break in wire 4. Valve flow control stem is screwed down too far
Controller has stopped working.	<ol style="list-style-type: none"> 1. Faulty transformer 2. Loose wire to controller or transformer 3. Controller plugged into a switched circuit which is turned off. 4. Tripped circuit breaker, check wiring to valves
Controller appears to function correctly but valves do not turn on.	<ol style="list-style-type: none"> 1. Common wire not attached to all valves or to controller 2. Automatic-Off-Manual slide switch in Off position 3. Household water main turned off
One valve is stuck on and will not shut off electrically	<ol style="list-style-type: none"> 1. Slide switch in Manual position 2. Faulty valve 3. Dirt or debris (sand) clogging internal parts of valve
Controller waters when it's not supposed to	<ol style="list-style-type: none"> 1. Skip-A-Day pin placed incorrectly 2. Current time of day shown on time dial not aligned with arrow on circuit selector knob.

ZONE LEGEND

ZONE	TIME	LOCATION
1		
2		
3		
4		
5		
6		

NOTES:



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