



INSTALLATION INSTRUCTIONS

C16+2 and C24+2 Hydraulic Controllers

Introduction

Specifically designed for commercial installations, the C16+2 and C24+2 hydraulic controllers can operate 16 or 24 normally open hydraulic control valves, two 24 VAC control valves (for drip applications) and a 24 VAC master valve or pump start relay.

For your protection and the safety of the user and equipment, please review the entire contents of this publication, paying additional attention to all Cautions and Warnings, prior to starting the actual installation.

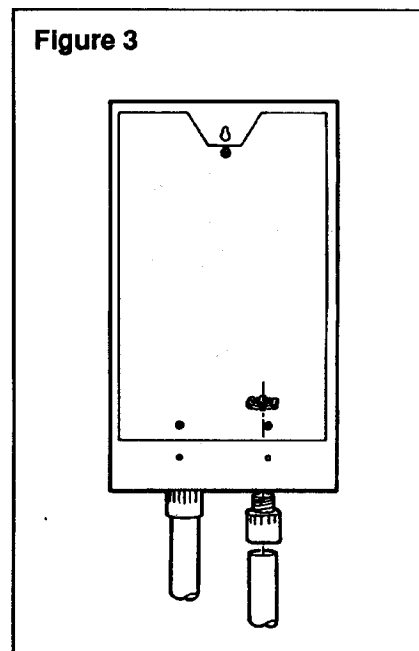
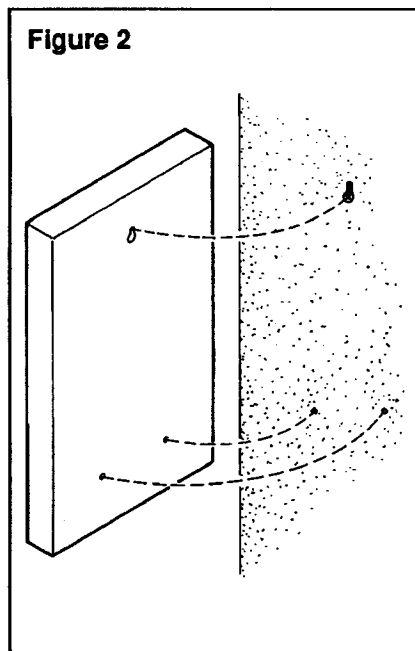
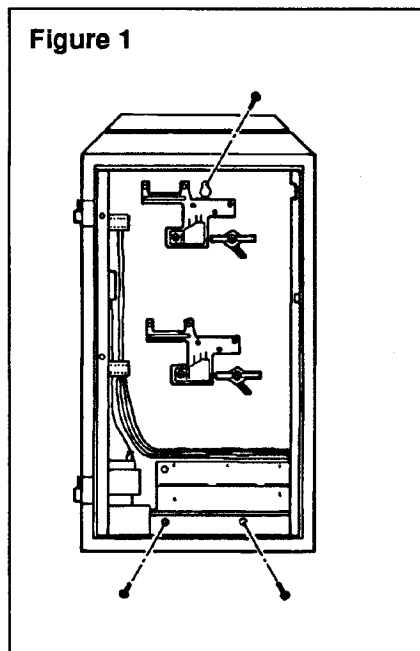
Cabinet Installation

The wall mount cabinet is constructed of heavy gauge steel and is weather-resistant for installation in virtually any location. However, placing the controller on a wall which is partially protected such as under roof eaves, away from direct sunlight and irrigation spray, will further enhance the controller's durability and performance.

CAUTION

Control tubing runs from valves to controller must not exceed 1000 ft. (300 m) when using 1/4 in. (6 mm) tubing or 500 ft. (150 m) when using 3/16 in. (5 mm).

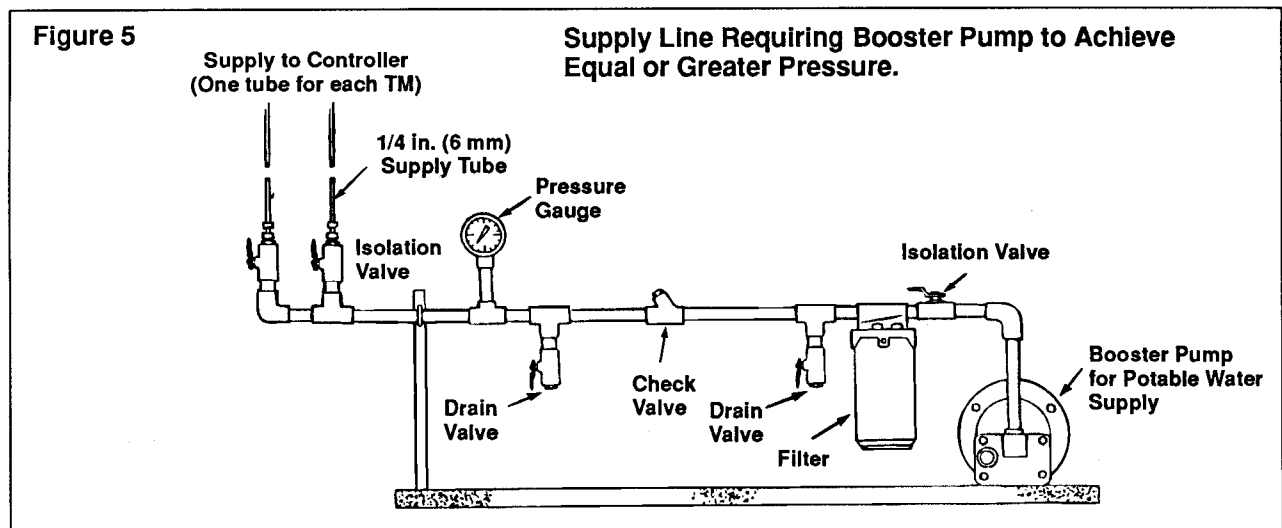
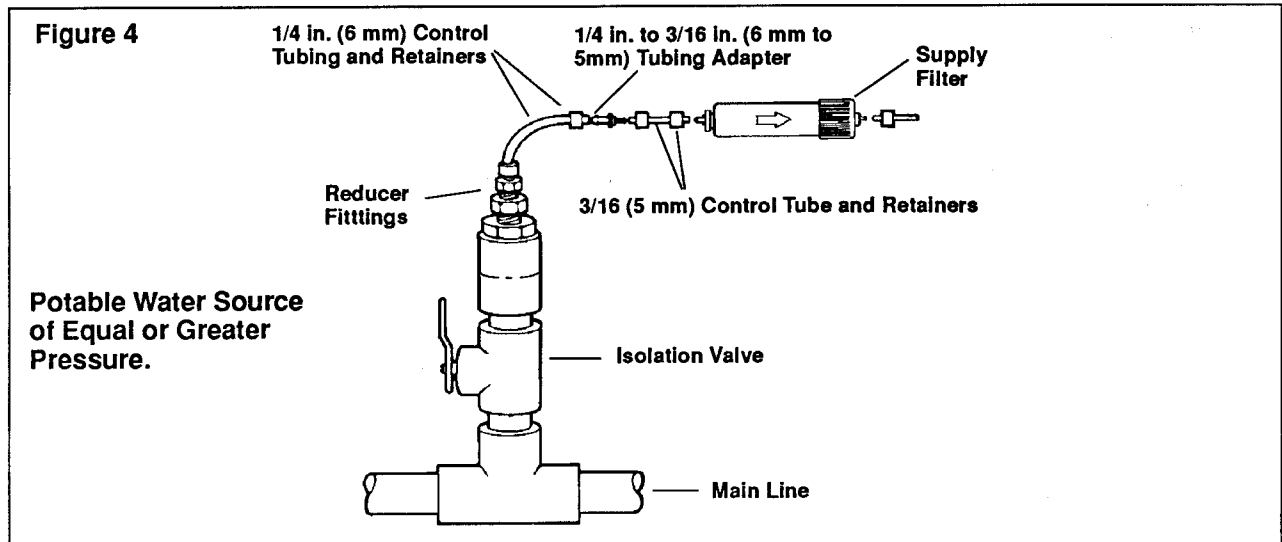
1. Unlock and remove cabinet door by lifting up and off cabinet hinge pins.
2. Remove lower access panel by turning knob 1/2 turn; lift panel out at bottom. Carefully disconnect wires from Independent/Sequential switch and set panel aside.
3. Remove four corner screws from each timing mechanism. Pull timing mechanisms from cabinet and carefully disconnect each one from its wiring harness plug.
4. Remove three screws retaining mounting base to cabinet as shown in Figure 1.
5. Position mounting base on wall in desired location. Attach mounting base securely to wall using three wood screws provided or appropriate fasteners as necessary. See Figure 2.
6. Install 1 in. (25 mm) conduit to both access holes in bottom of mounting base using appropriate fittings. See Figure 3.
7. Using best means available, support controller cabinet next to mounting base to accommodate control tube connections.



Installing Supply and Control Tubing

The controller requires a potable water supply source with pressure which is equal to or greater than the main line system pressure. Therefore, the controller's supply source must be located upstream of all station control valves (including master valve) and downstream from system pump.

1. Connect two controller supply tubes to source as applicable per Figure 4 or Figure 5.



Note: Refer to Figure 6 on next page for the following procedure.

2. Route supply tubes into mounting base and connect filter assemblies using tubing adapters and retainers provided. Disconnect tube from outlet end of either filter. (This filtered supply will be used for control tube installation procedure.)
3. Route control tubing from valve locations into mounting base. Leave tubing disconnected from valves at this time.
4. Use filtered supply water to flush, fill and identify each control tube. When all air and debris is purged from each tube, connect to fitting on control valve using tube retainer supplied with valve.

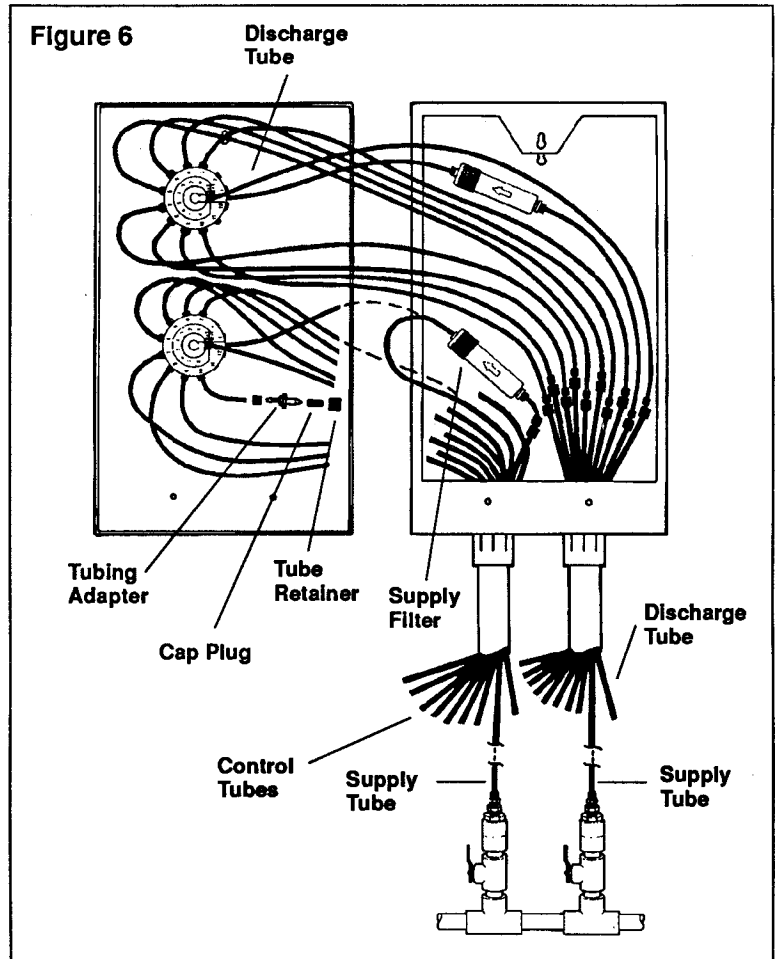
CAUTION

Failure to use tube retainers will result in eventual tubing cracks and leakage at connection.

Note: An 18 in. (46 cm) expansion loop in control tube should be provided at each valve location.

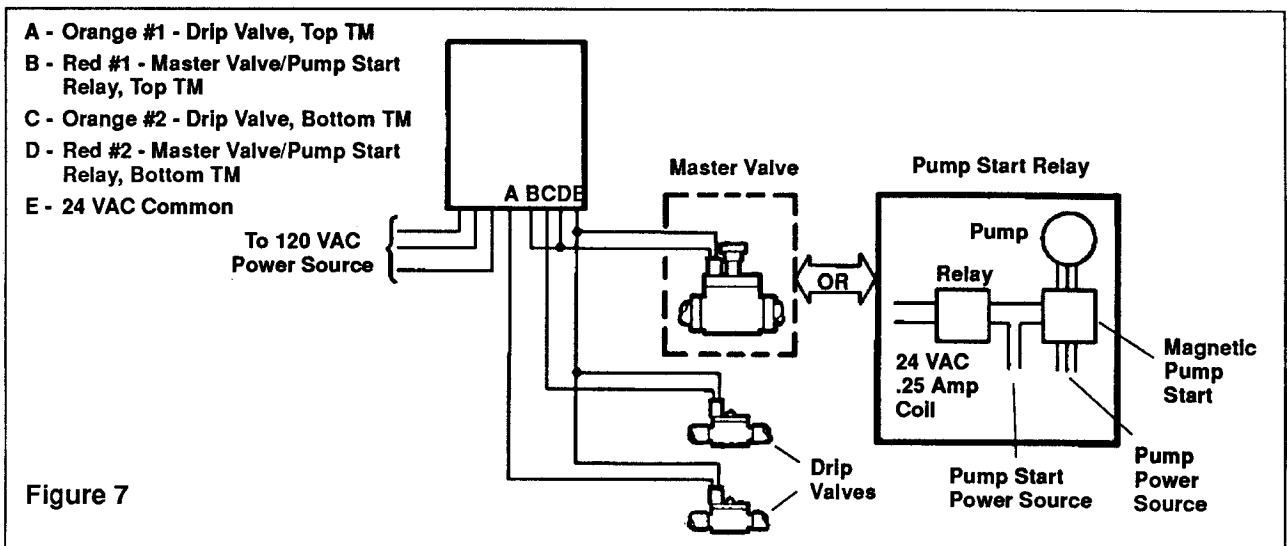
5. Connect each control tube to desired station number, as indicated on selector valve. Use tubing adapters and retainers (supplied) to make connections.
6. When all control tubes are connected, reconnect supply filter to selector valve.

7. Plug any unused station(s) using tubing adapter(s), cap plug(s) and retainer(s).
8. Route a discharge tube from each selector valve (discharge port is located in center of selector valve) to a location away from controller where a slight water discharge will not be harmful. End of tube should be at least 6 in. (15 cm) from ground to prevent debris from entering.
9. Install controller cabinet to mounting base using three screws.



Drip Valve and Pump Start Relay/Master Valve Connections

The controller is equipped to operate two 24 VAC control valves and one 24 VAC master valve/pump start relay. Use the wiring diagram shown in Figure 7 for connection of these components as required.



CAUTION

- Do not connect power to controller until all wiring procedures have been completed.
- Waterproof all buried wiring splices to avoid short circuiting.
- Drip control valve inrush current rating must be .25 amps or less.
- Pump start relay circuit is designed to operate a 24 VAC .25 amp (max.) pump start relay only. Do not connect magnetic pump start directly to this circuit.

Power and Ground Connections

The controller requires a 120 VAC 60 Hz power source for operation. A proper ground connection must also be made between the controller and the earth ground at the power source location.

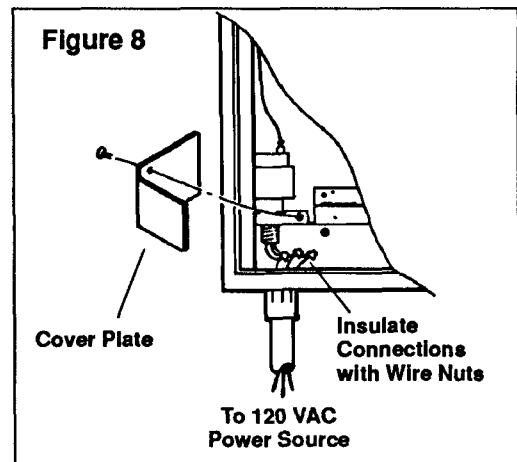
WARNING



DO NOT CONNECT 120 VAC POWER TO CONTROLLER UNTIL ALL WIRE CONNECTIONS HAVE BEEN MADE AND PROPERLY INSULATED. ASSURE ALL WIRE CONNECTIONS COMPLY TO THE NATIONAL ELECTRICAL CODE AND LOCAL CODES AS APPLICABLE. FAILURE TO DO SO MAY RESULT IN A HAZARDOUS CONDITION CAUSING SERIOUS INJURY AND/OR DAMAGE TO EQUIPMENT.

Note: Refer to Figure 8 for the following procedure.

1. Remove cover plate located below transformer.
2. Install 1/2 in. (13 mm) conduit to access hole directly below transformer.
3. Route Power, Neutral, and Ground wires from source location, through conduit, into controller cabinet.
4. Using wire nuts provided, connect Power wire to Black lead, Neutral wire to White lead and Ground wire to Green lead.
5. Install cover plate removed in Step 1.



Timing Mechanism (TM) Installation

1. Align selector valve tee handle as shown in Figure 9.
2. Position TM station selector knobs to Off.
3. Connect top TM to wiring harness plug. Position TM into cabinet and secure with four corner screws. Push in and rotate station selector knob one complete revolution for proper TM/selector valve alignment.
4. Repeat procedure for bottom TM.
5. Carefully reconnect wires to circuit breaker. Install lower access panel and cabinet door.
6. Apply power to controller. Refer to operating instructions form number 366-0017, for controller operation.

