



Controller Wiring Manual

**Pump Start ♦ Master Valves ♦ Multiple Controllers ♦ Rain Sensors
Soil Moisture Sensors ♦ Remote Control Devices**

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Pump Start Wiring

Wiring a pump start is easily accomplished if you follow a few basic steps. First, be sure to have a proven wiring diagram available for the particular situation you are wiring. Next, any Class 1 wiring (above 30 VAC) must be installed by a licensed electrician. Last, if you are not experienced in pump start wiring, find someone who knows how to install a pump start and learn the basics from them before you attempt to install one by yourself.

Warning! Any pump start relay wired to an irrigation controller should have all unused station wires connected to the last used station wire. See Figure 7.

The following diagrams show wiring details for pump start relay and pump motor starter wiring for various Rain Bird controllers.

Figure 1:

This is a basic pump start wiring diagram for most controllers. This diagram assumes the Master Valve circuit is being utilized for the pump start circuit.

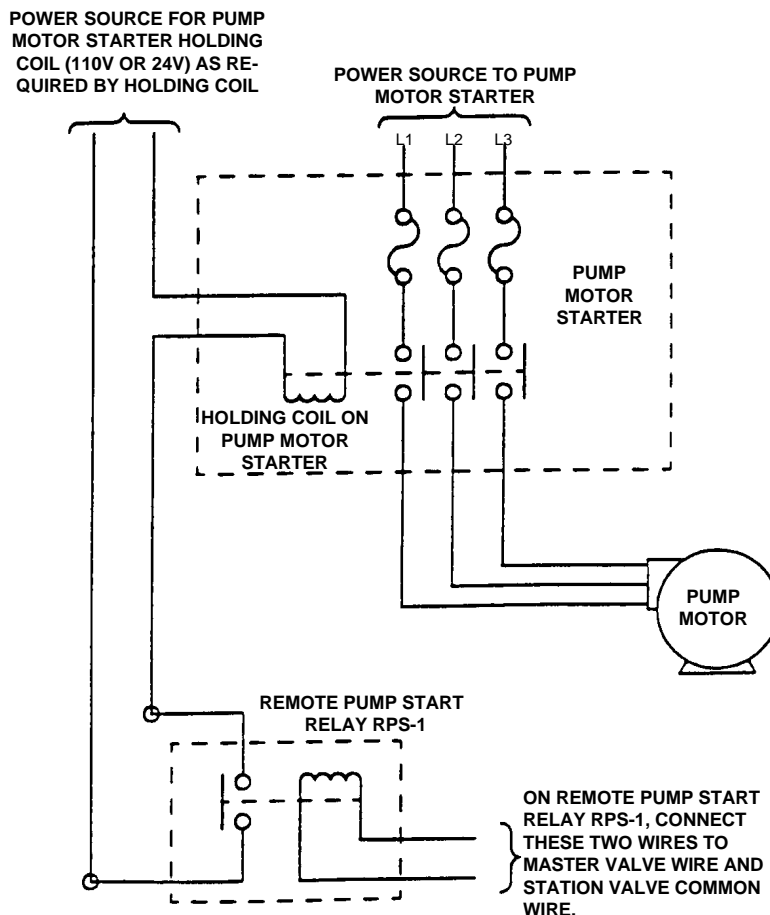


Figure 2:

You cannot install more than one controller to a pump start relay. You can however, install multiple relays to one pump starter. This diagram is for installing two or more controller relays to one pump starter, and any controller can operate at any time with any other controller already operating.

Warning!: Be sure to allow for enough hydraulic supply, if multiple controllers can operate at the same time.

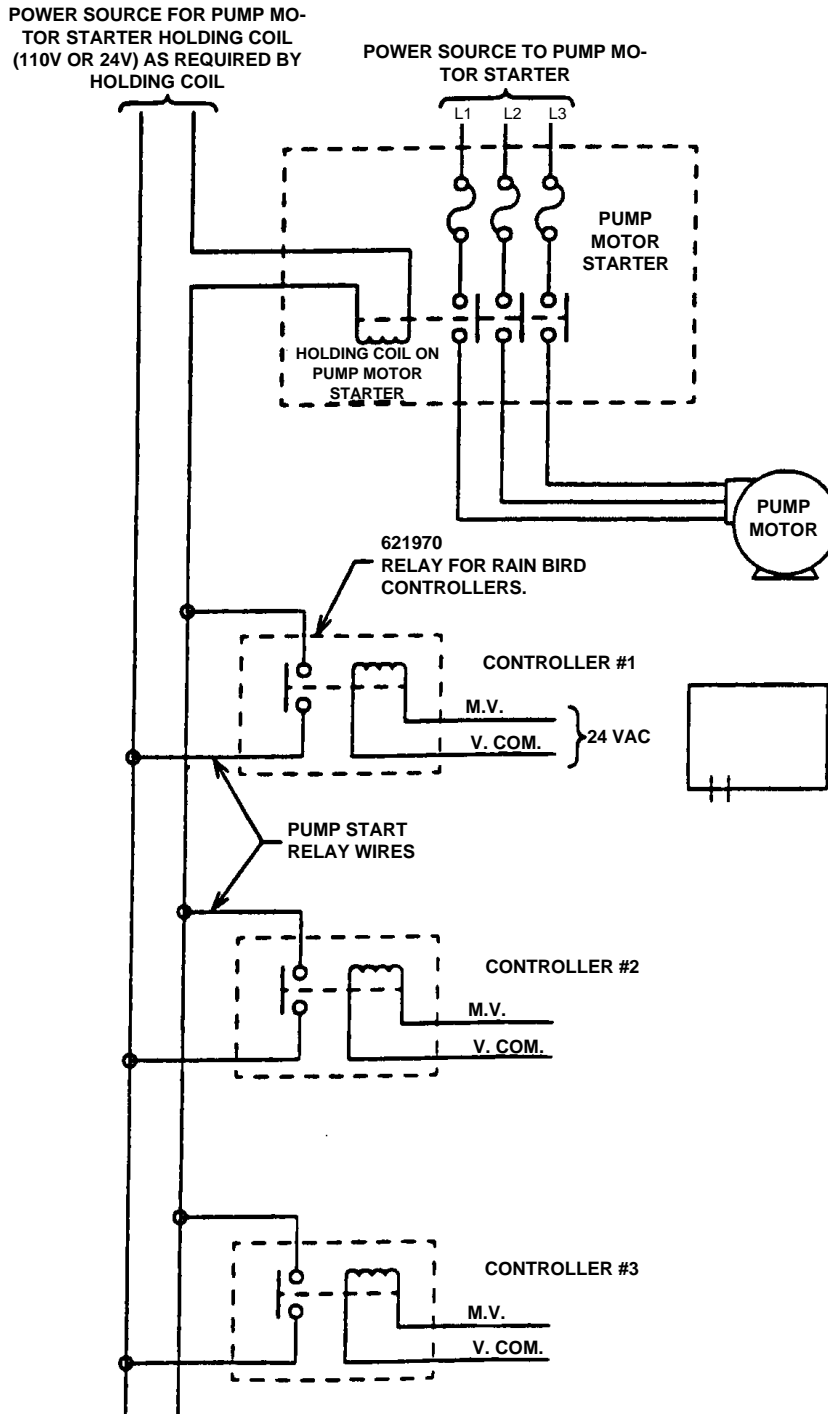


Figure 3:

This diagram is for two controllers operating one Master Valve and one pump starter.

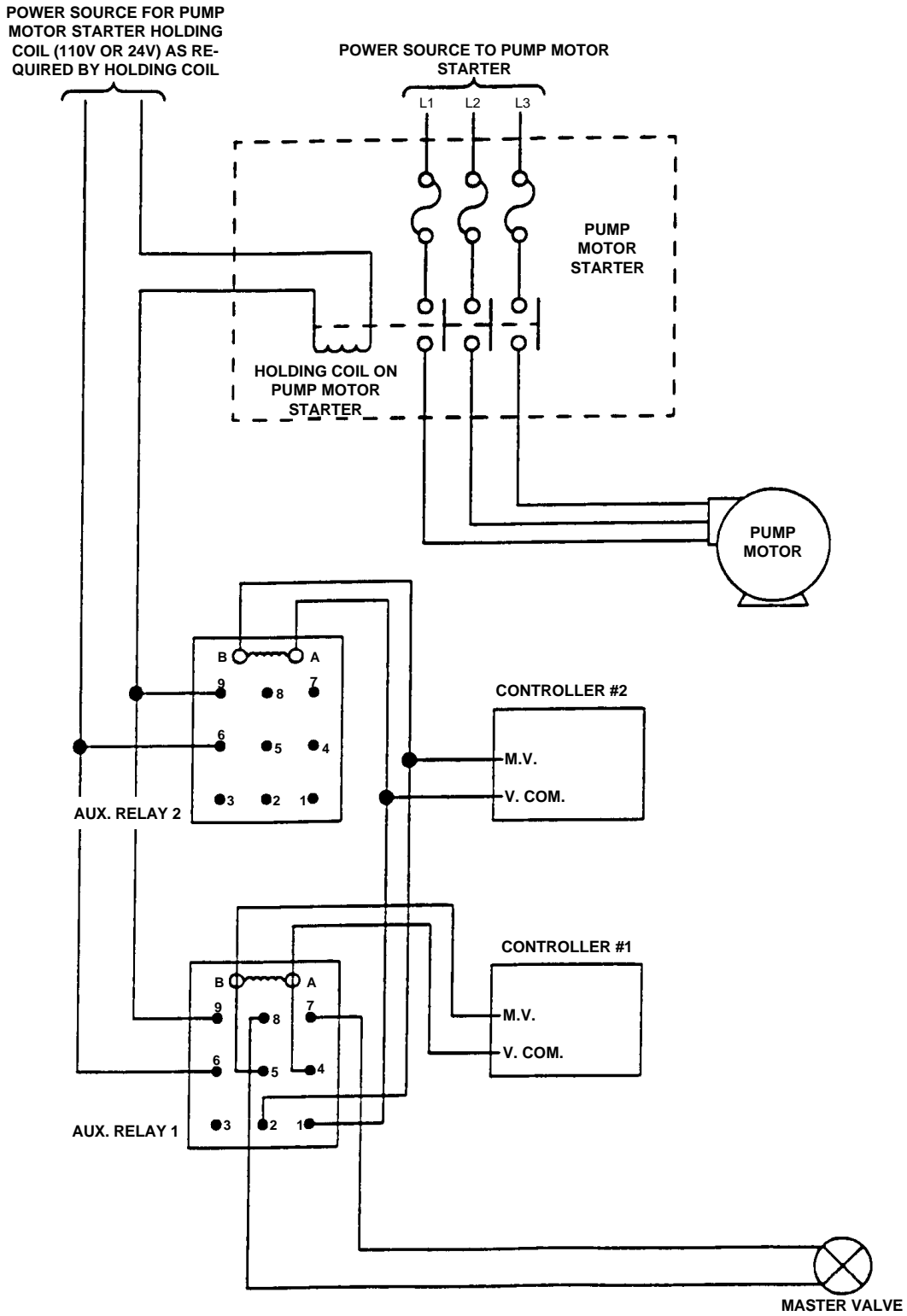


Figure 4:

This diagram details the wiring for three controllers operating one pump starter and utilizing one Common wire, for all valves on all three controllers.

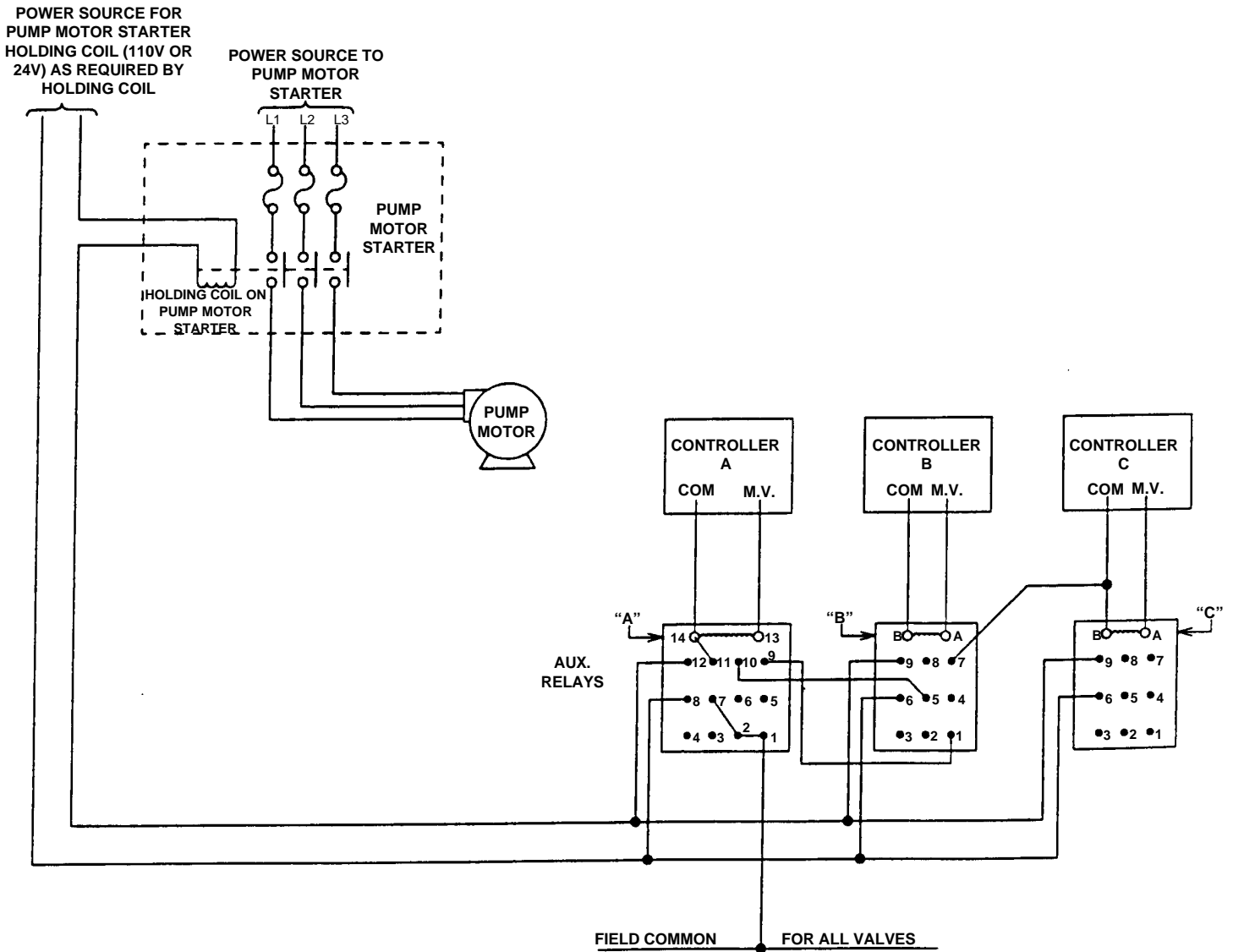


Figure 5:

This wiring diagram shows us the wiring for four controllers wired to one pump starter, and one Common wire for all valves on all four controllers. If more than one controller is in operation at the same time, Controller A takes precedence over Controllers B, C and D; Controller B will take precedence over C and D; Controller C will take precedence over Controller D.

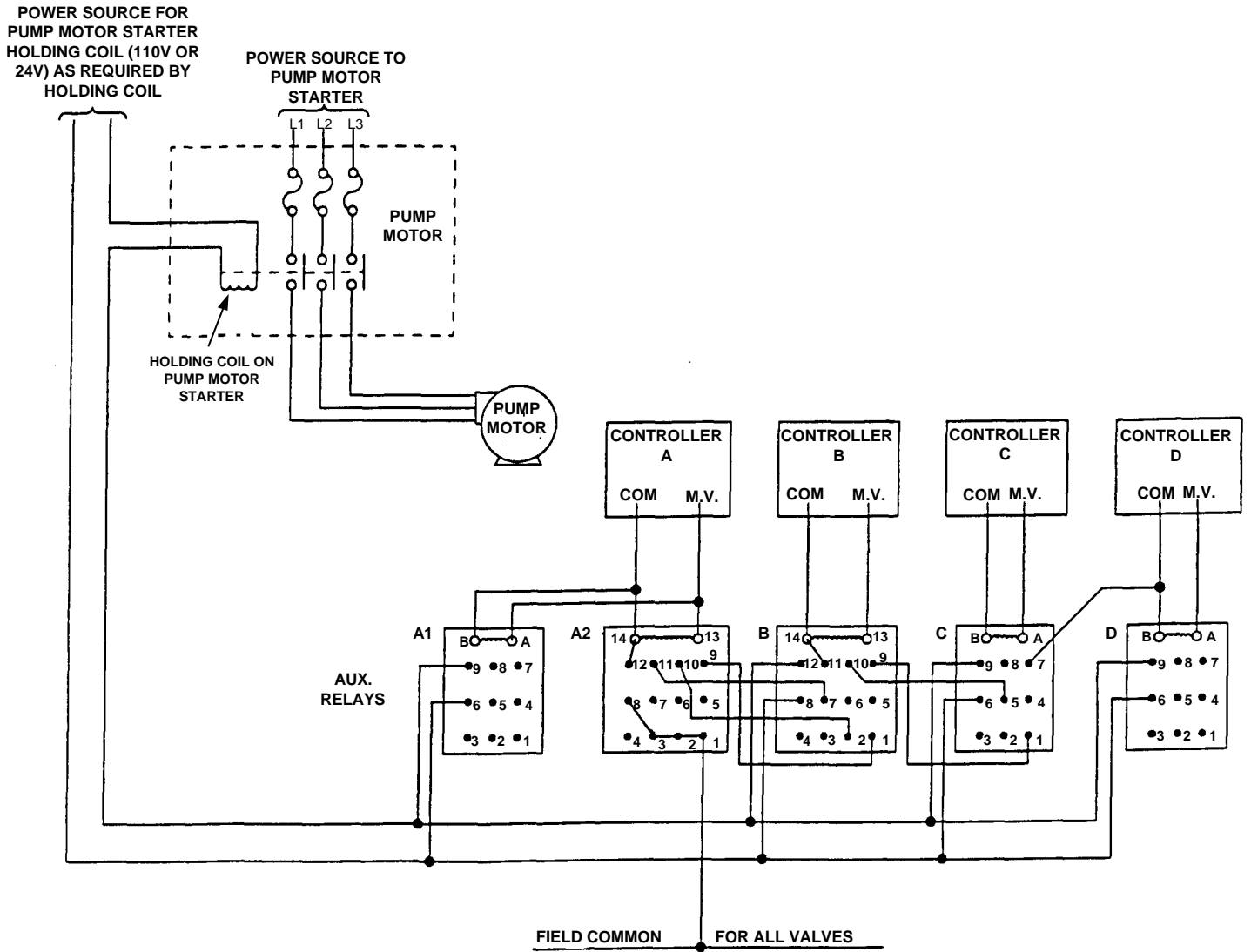


Figure 6:

This diagram shows how to wire a pump start relay with a pressure switch. The pressure switch will turn on the pump any time the pressure falls below the preset low pressure limit. The controller will turn on the pump when an irrigation start is initiated, whether the pressure switch is active or not.

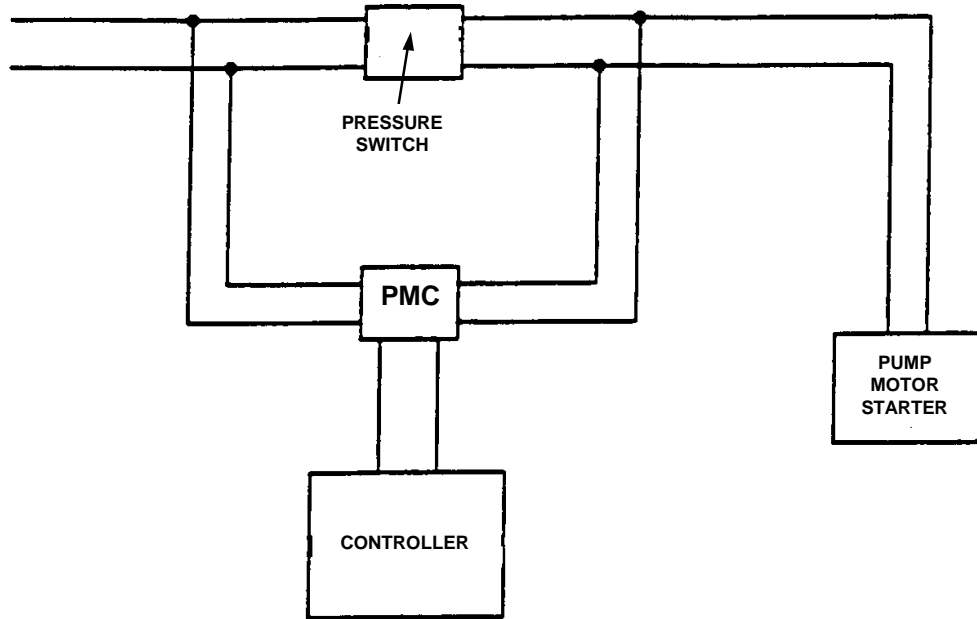


Figure 7:

Any time you wire a pump start relay to a controller, you must wire all unused stations to the last station with a valve to prevent pump "dead-heading." This diagram shows wiring details for wiring unused station to the last used station.

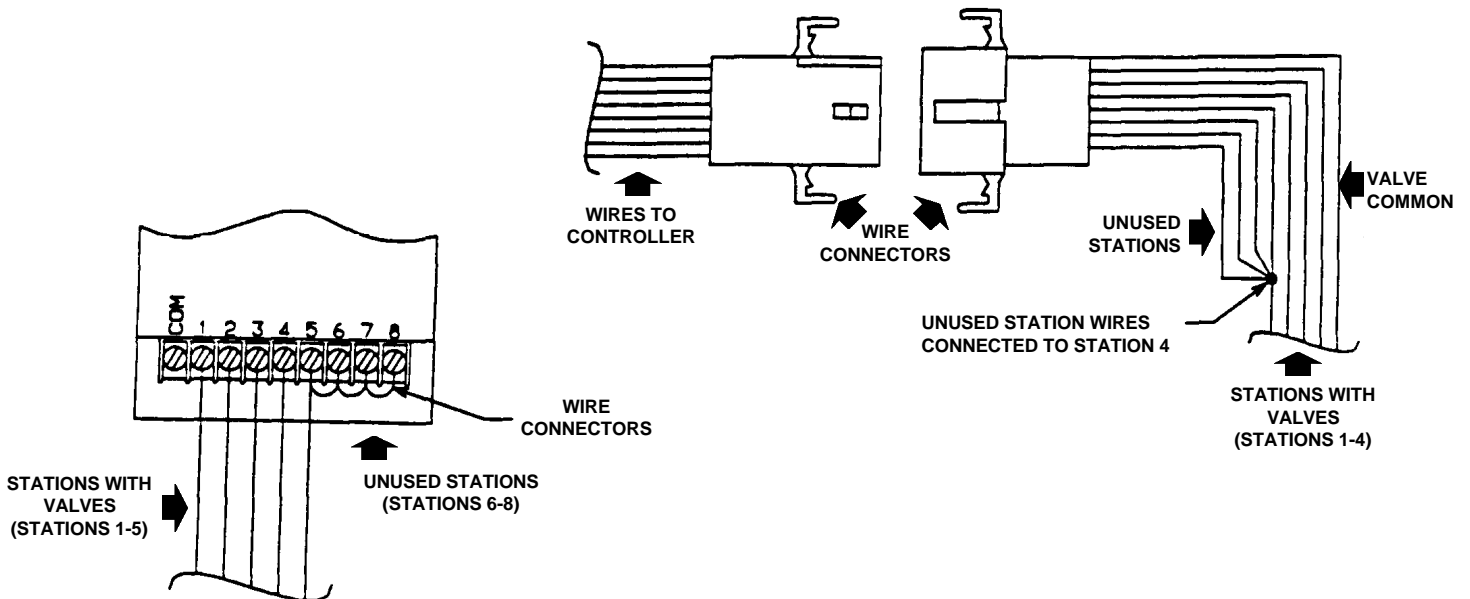


Figure 8:

This diagram details wiring for operating some valves with a pump and others without a pump on the same controller. (Many new controller lines have this feature in its programming, this detail is for those controllers which do not.)

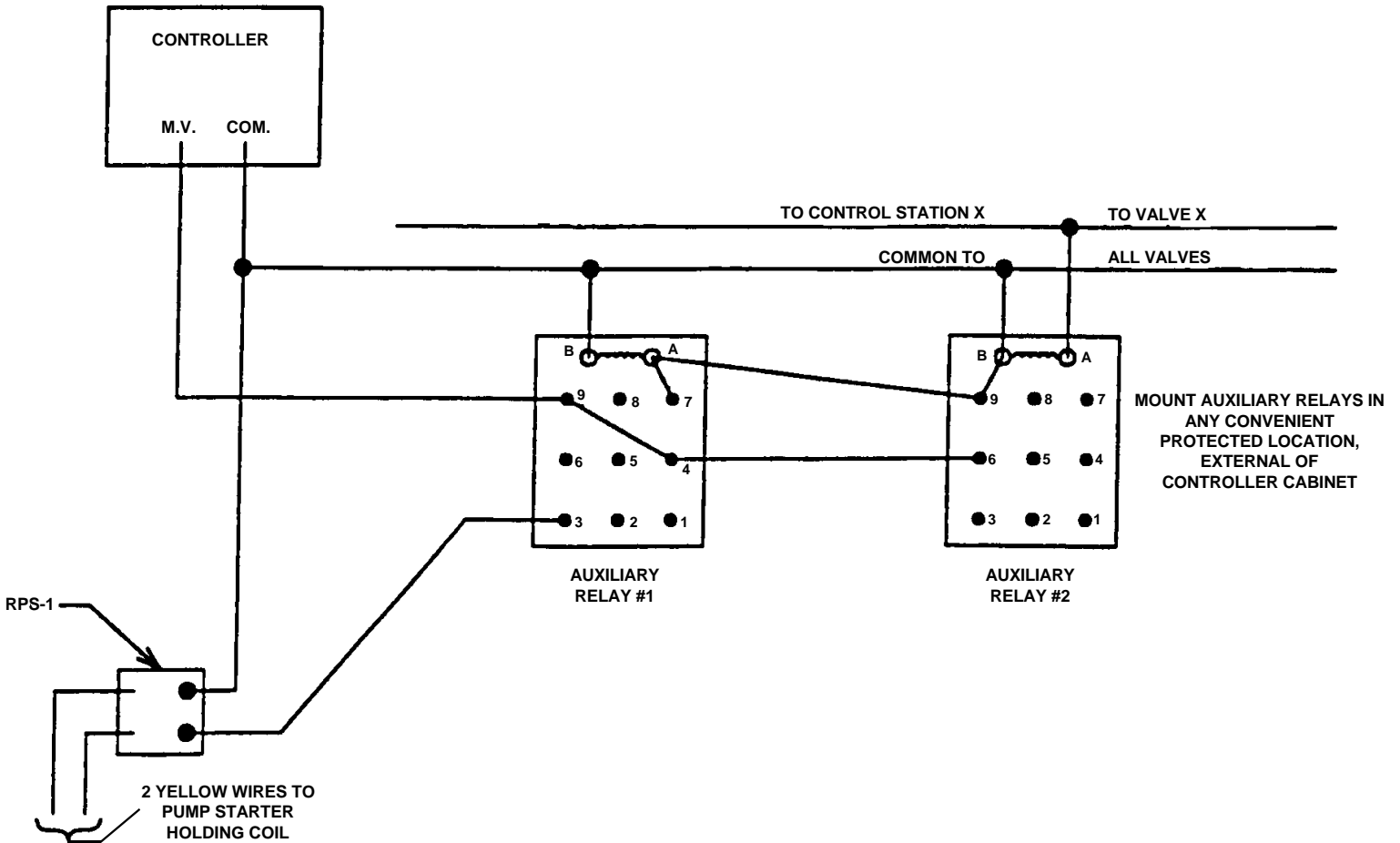


Figure 8

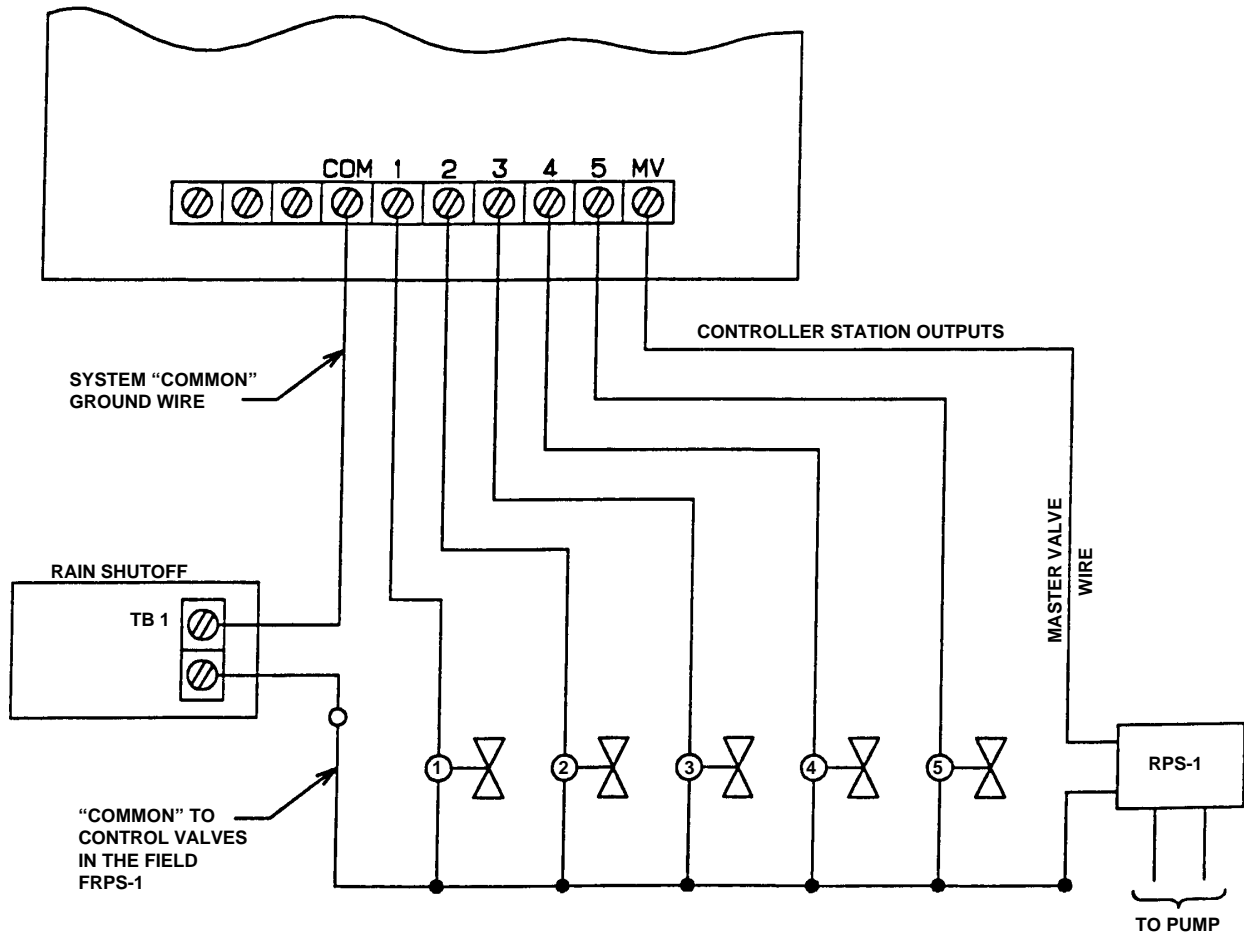
Operating Instructions:

All stations operating with the pump must be grouped together ahead of control station "X." When station "X" turns on, the pump is turned off. The pump stays off for all remaining stations in the cycle. When the last station turns off, the pump relay is reset to operate with the next irrigation start. The pump operates with stations 1 through "X - 1" and is off with stations X through the last station.

Example: ISC - B + -12 with the pump on for stations #1 through #4 and off with stations #5 through #12. Station #5 is control station X and turns the pump off when the controller turns on Station #5. When the cycle is complete (all 12 stations have operated), the pump start relay is reset to start the pump at the next irrigation start.

Figure 9:

This diagram shows wiring for a pump start relay wired with a rain sensor (Rain Check) or a soil moisture sensor (Aquamiser).



Master Valve Wiring

When wiring multiple controllers to a Master Valve, the controller Master Valve circuits must be isolated from each other. The following diagrams illustrate how to install re-lays for multiple controller installations.

Figure 10:

This diagram illustrates the wiring for installing two controllers with one Master Valve. A Rain Check or Aquamiser device for each controller is also shown. If the Rain Check or Aquamiser device is not installed, the common wire should be wired to bypass the unit in the diagram.

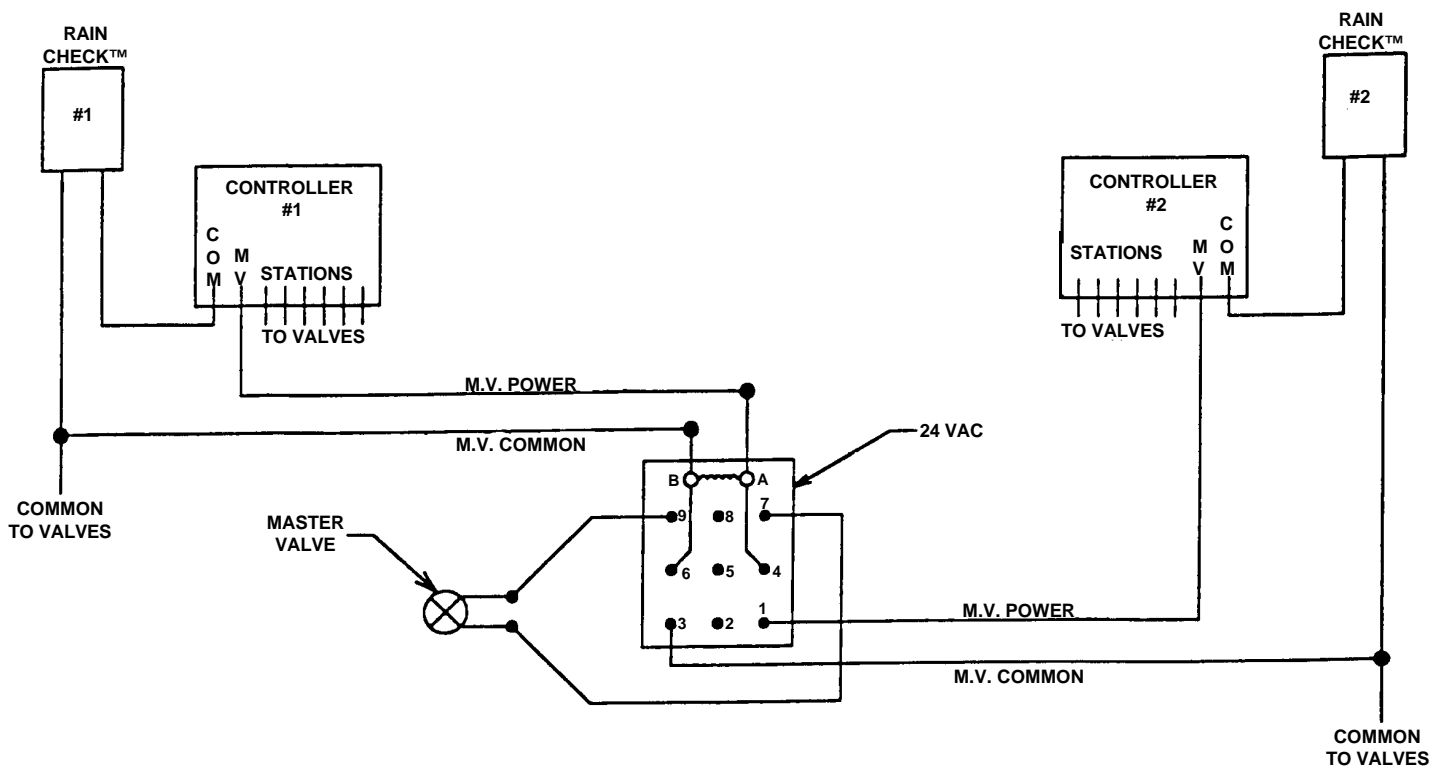
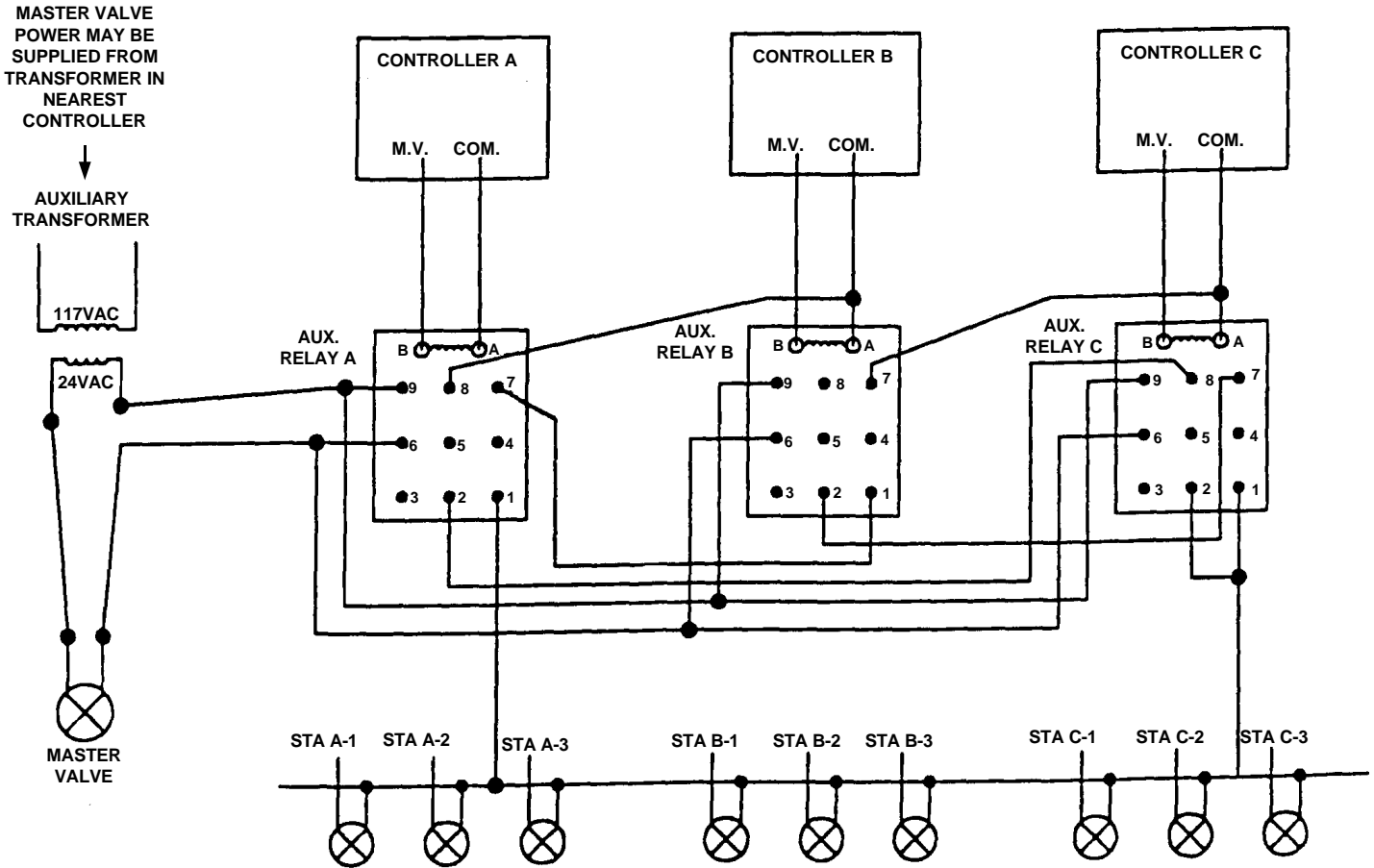


Figure 11:

This diagram shows the wiring for three controllers sharing one master valve and one common wire for all valves. This will allow for only one controller to operate at a time. If more than one controller operates at a time, the common wire will be disconnected from **all** field valves on **all** three controllers.



Multiple Controller Wiring (Common Wire Isolation)

Wiring multiple controllers on a single project requires the common wire to be separated from each of the controllers. The following diagrams illustrate how to wire these types of installations.

Figure 12:

This wiring diagram shows how to wire two controllers to one common wire.

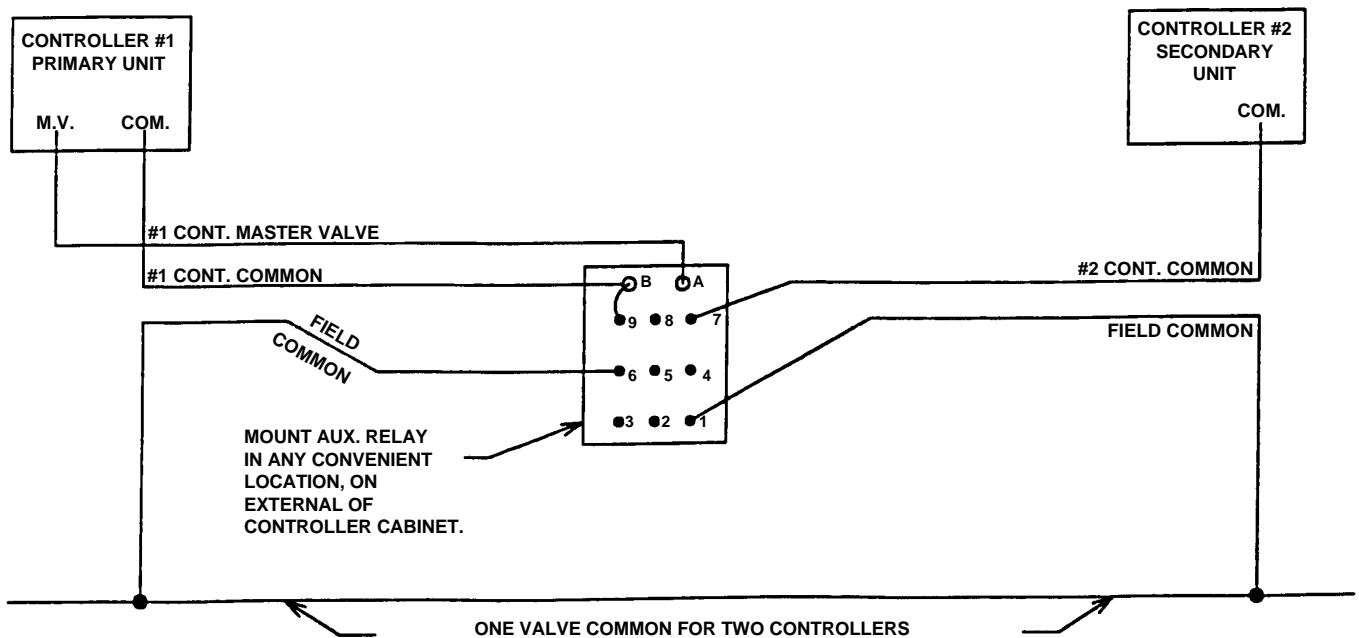
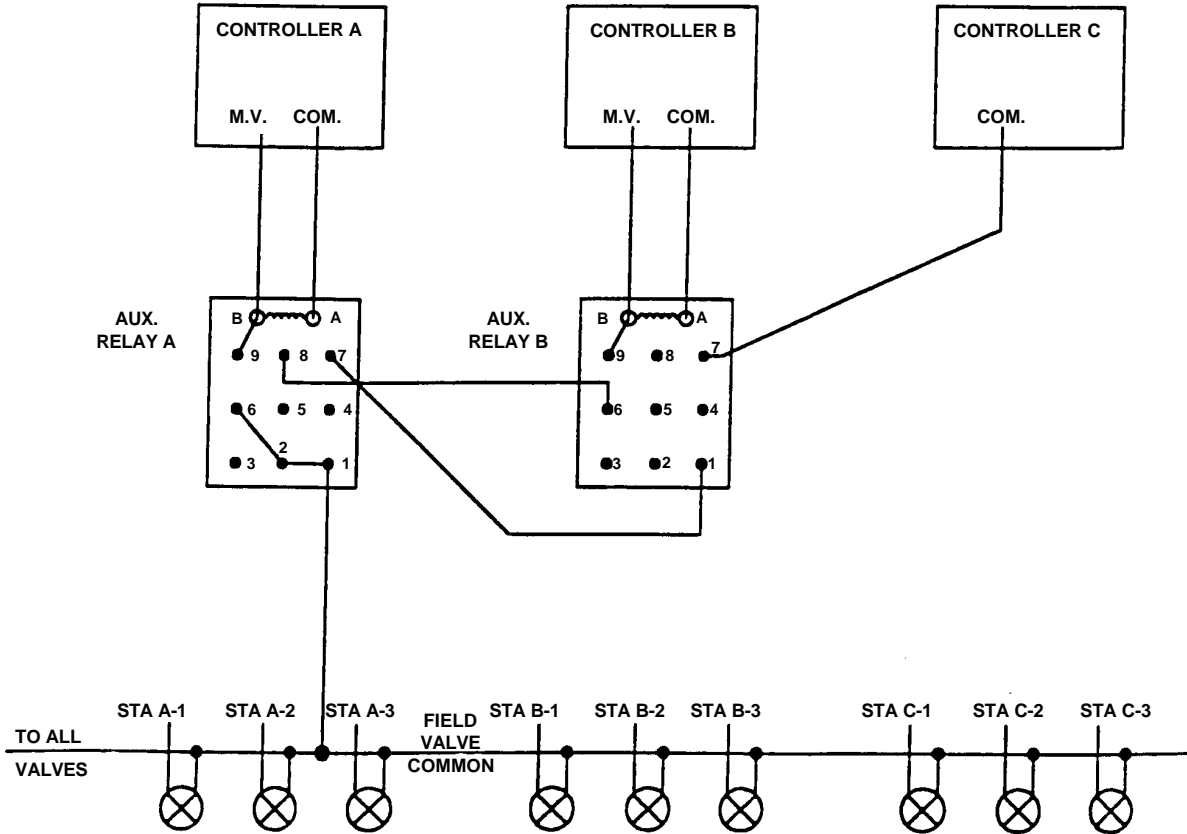


Figure 13:

This diagram shows the wiring detail for the installation of relays to isolate the common wire with three controllers. Controllers should be operated one at a time. If more than one controller is operated at a time, Controller A takes precedence over Controller B and C; Controller B takes precedence over Controller C.

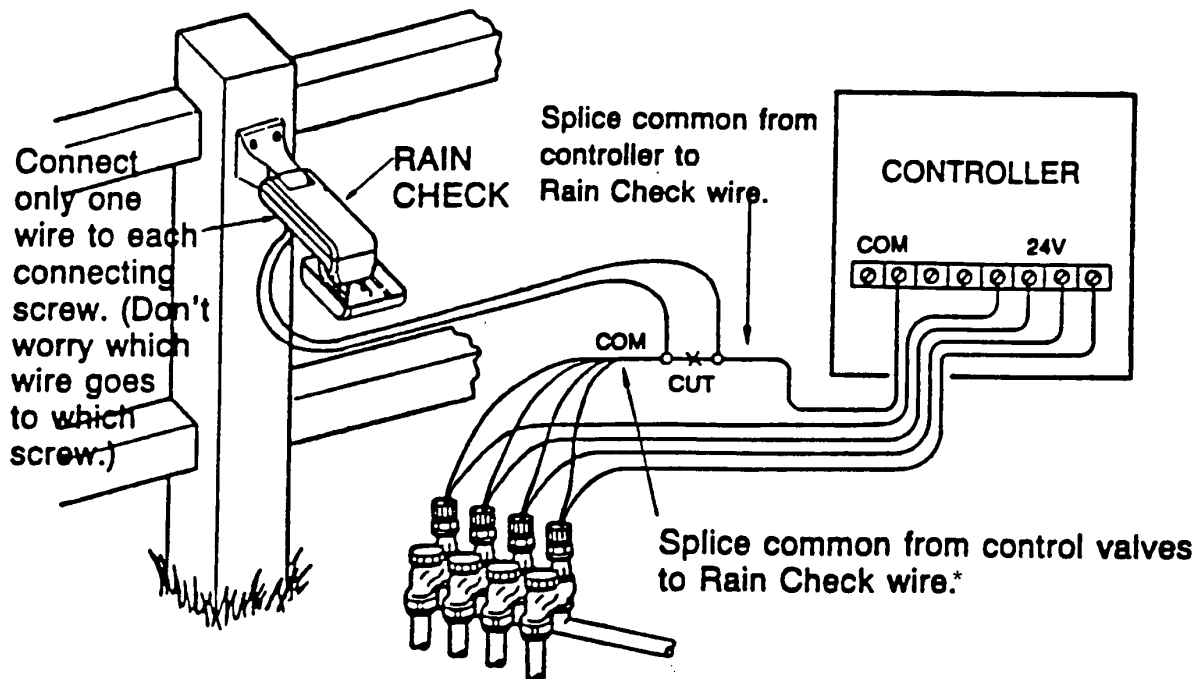


Sensor Wiring

Wiring sensors is quite simple. The following wiring diagrams will assist you in wiring most common types of sensors.

Figure 14:

This diagram shows how to wire a rain sensor device. (Rain Check)



*This splice should be between the controller and the valves, pump start relay or master valve.

Figure 15:

This diagram shows the wiring for a soil moisture sensor (Aquamiser).

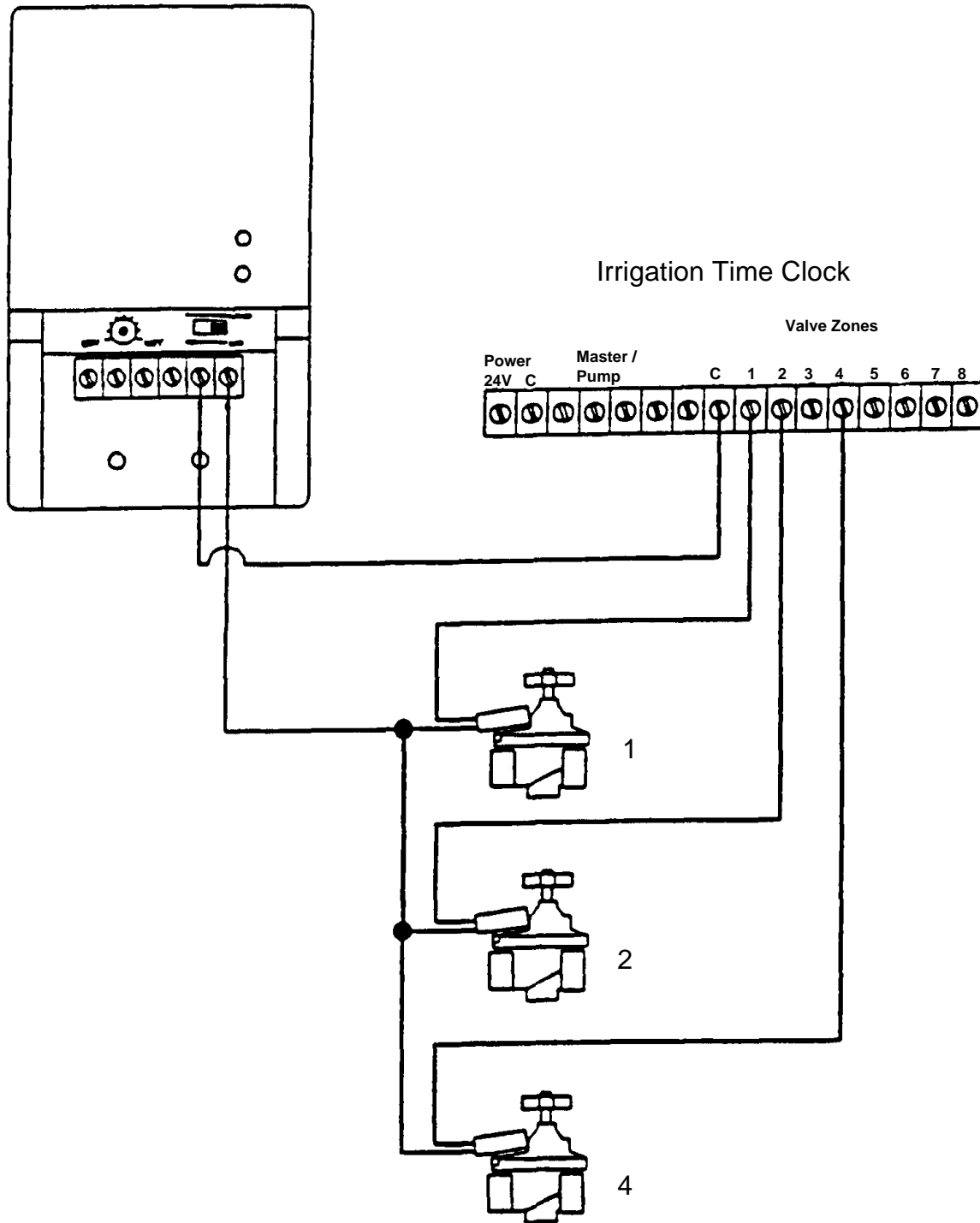
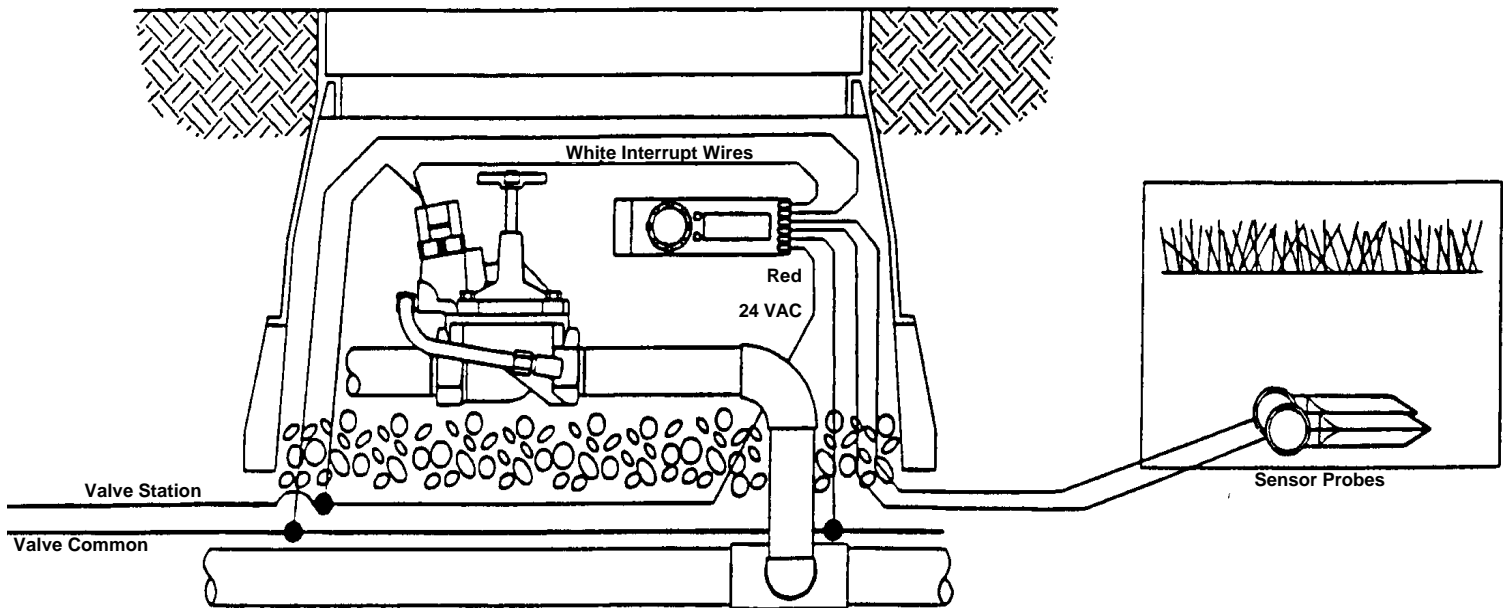


Figure 16:

This diagram illustrates the wiring for a single valve soil moisture sensor.
(Intelligence-100)

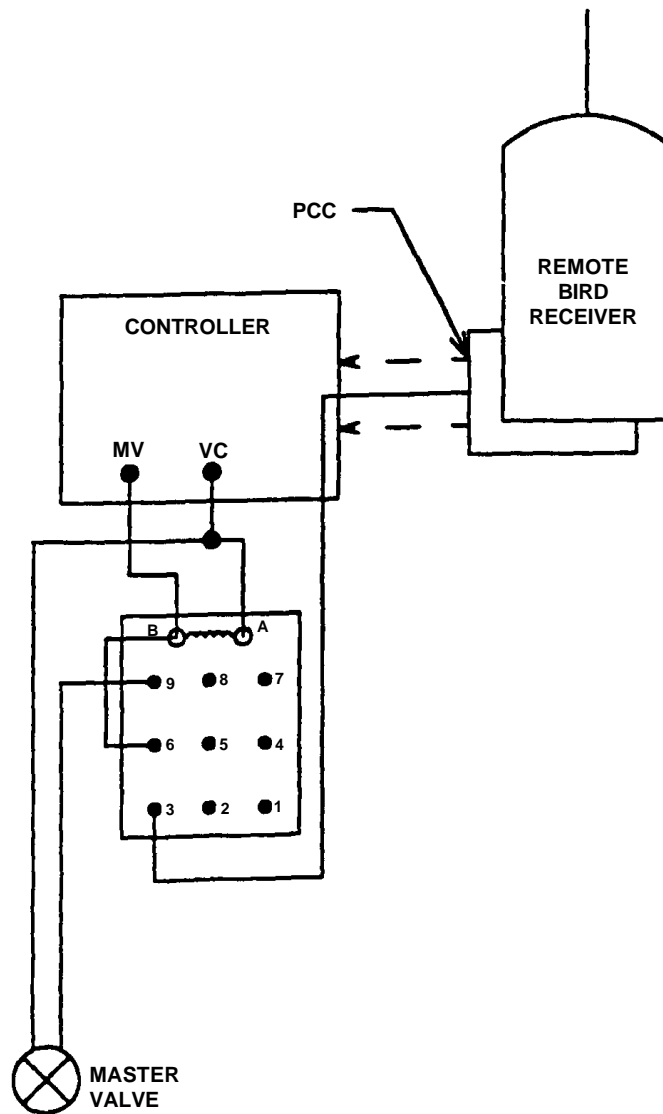


Remote Control Isolation Wiring

Wiring a remote control device (Remote Bird) to some electromechanical controllers (RC Series controllers) requires an isolation relay to allow the remote controller to operate properly.

Figure 17:

This diagram illustrates how to wire a remote control device to an electromechanical controller.



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