

INTERMATIC® PE SERIES POOL/SPA EQUIPMENT CONTROLS

INSTALLATION OPERATION & SERVICE MANUAL

MODEL P4243ME VALVE/PUMP SWITCH MECHANISM

ELECTRICAL RATINGS:

CIRCUITS #1 & #2: 17A Resistive 120-240V, 10 A Tungsten - 120V,
1.5 HP - 120V, 3 HP - 240V, 60 Hz; Double Pole Single Throw (DPST)

VALVE ACTUATOR SUPPLY: 24V - 40VA max.

DANGER! To Reduce the Risk of Injury:

...do not permit small children to operate the Control or use the Pool/Spa unless they are closely supervised at all times.
...test GROUND FAULT protection regularly. If it fails to reset, DO NOT USE THE POOL or SPA! Contact a qualified service technician.
...always disconnect electricity before servicing this Control or the equipment connected to it. THIS CONTROL IS NOT TO BE USED AS A POWER DISCONNECT.

IMPORTANT SAFETY INSTRUCTIONS

When installing and operating this Product and other associated equipment, basic safety precautions should always be followed,

1. This Control must be installed by a qualified person, according to National and Local Electrical Codes.
2. Install this Control no less than 5 feet (3 meters in Canada) from inside edge of pool. USE COPPER CONDUCTORS ONLY, rated 75°C minimum.
3. Do not exceed the maximum ratings of individual components, wiring devices, and current carrying capacity of conductors.
4. For Control grounding, bonding, installing and the wiring of underwater lights, refer to Article 680 of the National Electrical Code or Article 68 of the Canadian Electrical Code.
5. The Control should not operate any equipment which could cause bodily injury or property damage should it be activated unexpectedly.

READ, FOLLOW AND SAVE THIS INSTRUCTION MANUAL

GENERAL INFORMATION

This Switching Mechanism is most suited for controlling the shared equipment of Pool-Spa combinations but it can be also used to control all the equipment typically needed in connection with water features, water gardening solar heating and other similar applications. It features two 3 HP double pole relays, one of which can be controlled by an external timer, 24 volt supply for up to three valve actuators, automatic HIGH/LOW water temperature selector and push button control for each load with indicator lights on the face of Control.

In addition, the unit has connections for a hard wired or a wireless remote and/or to a remote installed Master Switch.

The Mechanism is designed to “snap” into most Intermatic panels and outdoor enclosures in use today and it can be interfaced with other Intermatic products in order to facilitate a large number of custom applications. For example, if it is combined with Model P1353ME Multipurpose Control, the two Mechanisms together can handle a two speed filter pump, an interconnected cleaner pump, a two stage protected heater, together with “turn key” Pool-to-Spa operation, a jet pump and lights.



INSTALLATION - P4243ME

Using the Turn Key (one button Pool-to-Spa option), this Mechanism will coordinate the operation of a 120 volt or 240 volt single speed filter pump, a two stage gas heater, three valve actuators and one additional load. Using the three buttons on face of this Mechanism, (or the wired or wireless remote), each load (valves, relay 1 and relay 2) can be controlled independently.

1. Review wiring diagrams on pages 3 and 5 and prepare an installation layout best suited for the application. Make sure only copper, solid or stranded conductors with 75° min. insulation are used, properly sized and suitable for the installation. Each piece of equipment must be properly grounded.
2. Install Mechanism in an existing Intermatic 10 x 10 x 5 in. or larger enclosure or install first a suitable Intermatic panel on a flat vertical surface or other support, at least three feet above the ground.
3. Prepare the necessary conduit runs, including one for the wired remote and or Master Switch if needed. Terminate them at both ends and pull in the conductors as specified by the installation layout.
4. Snap mechanism in bracket in enclosure. Remove screw above the heater switch, slide cover upwards and gain access to the printed circuit board assembly in low voltage compartment.
5. Make low voltage wire connections.
NOTE: Valve Actuator and Wired Remote connectors are Polarized. Heater thermostat connector is the two-piece type and it is not polarized.
6. If heater is a single stage heater, install jumper between heater thermostat terminals 1 and 3. See Figure 2 below.
7. Set function selector jumpers (refer to Fig. 3 on page 4).
8. If specified, install and plug in the Wired Remote Accessory, part number 133PE1484A (Supplied Separately), (see also remote control options on page 3).
9. Follow wiring diagram on page 3 or 5; make Line and Load connections as shown in the high voltage compartment. Make sure the installation is securely grounded and bonded if required.
10. If specified, make connections to the WHT/BLK Master Switch leads and install the desired remote located switching device. See also note 4 on page 3.
11. Check wiring, tightness of connections and grounding. Close wiring compartments, set heater selector switch.
12. Turn ON power, test installation and synchronize valve actuators. The system should be in SPA mode when the light next to "VALVES" button is lit.

First, remove terminal block from socket. Make wire connections, then replace block with wires attached as shown on page 4, figure 3.

Note: High and low voltage wires should not occupy the same compartment. If enclosure already has a divider between the high and low voltage compartments, run valve actuator, wired remote if specified, and heater thermostat wires through the low voltage channel and make connections in low voltage compartment as shown on page 4. Otherwise, first install the corrugated tubing kit part number 156PA12976A (supplied separately) as shown (see Fig. 1), and install the low voltage wires in tubing.

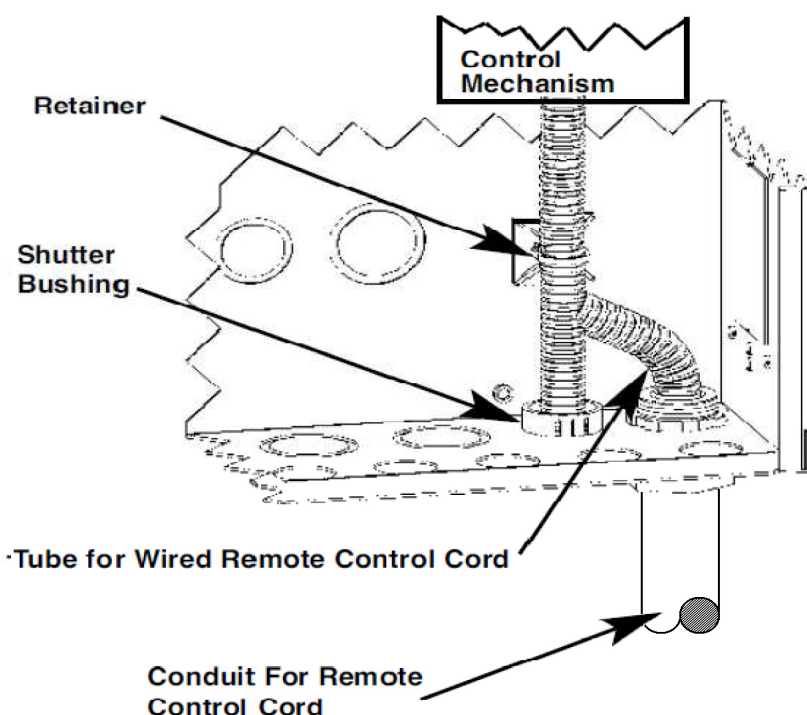
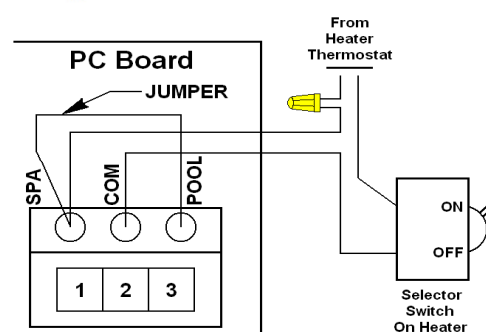


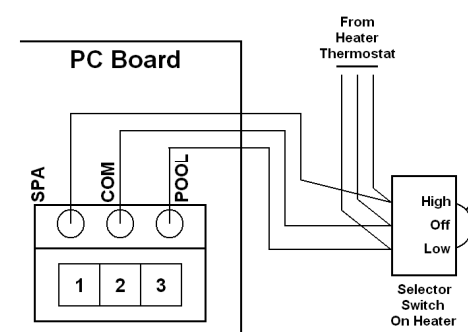
Figure 1 Low Voltage Wiring

Single Thermostat Heater



1. Connect two 18 gauge wires in **SERIES** with Heater's Selector Switch.
2. Connect one of the wires to terminal "2" (push and release tab) and the other to terminal "1". **INSTALL JUMPER BETWEEN TERMINALS "1" AND "3"**.
3. Leave heater switch in ON position.

Dual Thermostat Heater



1. Connect three 18 gauge wires in **PARALLEL** with Heater's Selector Switch.
2. Connect the wire from center post (Common) of heater switch to terminal "2", (push and release tab) High to "1" and Low to "3".
3. Leave heater switch in **OFF** position.

Figure 2 Thermostat Wire Connections

REMOTE CONTROL OPTIONS - P4243ME

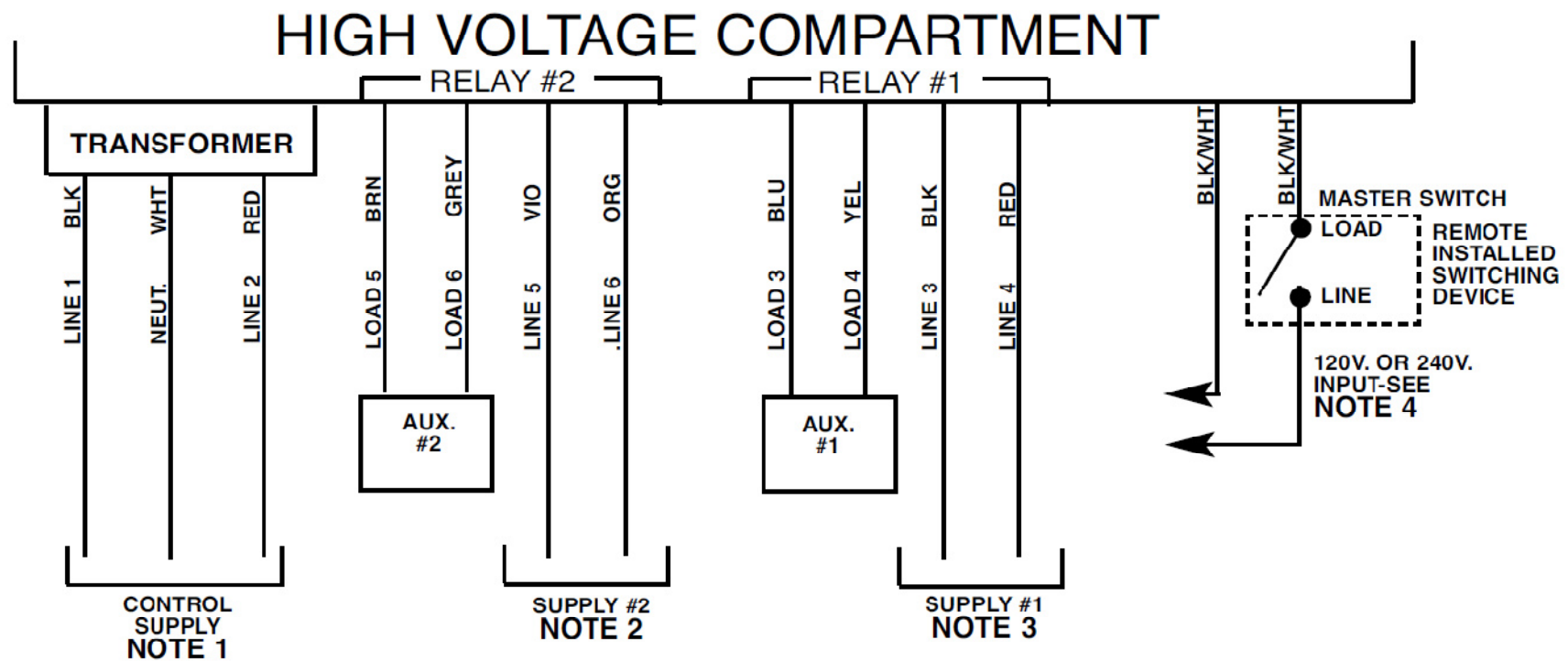
1. WIRED REMOTE OPTION:

This accessory (MODEL 133PE1484A) comes with 100 foot of cable with an 8-pin connector at its end. The body slip-fits in any 1-1/2" conduit or conduit adapter. It works in conjunction with this or with the three-circuit Digital Control Mechanism (Model P1353ME). The Remote operates as well as displays information on the pool/spa equipment. For further details, refer to instructions provided with the accessory.

2. MASTER SWITCH OPTION:

The unique feature of this control option is the ability to accept a 120V or 240V, momentary or latching input from a remote-installed switch (i.e. toggle switch, air switch, count-down timer, or radio receiver). Every time the switch is thrown (manually or automatically), it will reverse the state of the pool/spa equipment like valves, heater, filter pump, and auxiliary. This feature can also be used together with the Wired Remote in order to independently control the Pool-To-Spa function and the auxiliary equipment.

WIRING INFORMATION



NOTES

1. Connect either 120 Volt to BLACK and WHITE leads or 240 Volt to BLACK and RED leads. Cap the unused lead.
2. Connect the supply of any 120 or 240 volt load to these leads. The double pole relay controlling circuit #2 will close, as set by Jumper 3 either in pool mode or in spa mode. Its state will change every time the valve positions change but it's state can be reversed by pushing RELAY2 button on face of Control.
3. Connect 120 or 240-volt filter pump supply to these leads. The double pole relay controlling the filter pump will close, as set by Jumper 2 either in the pool mode or in the spa mode. If the dry contacts of a time clock are connected to the two time clock terminals (See figure 4),

the relay contacts will open and close as scheduled, however, its state can be reversed by pushing RELAY 1 button on face of Control.

4. If a remote Master Switch is specified, connect one BLK/WHT lead to either the RED or WHITE lead, whichever is used to power the transformer. Connect the other BLK/WHT lead to the **Load** terminal of a switching device (toggle, countdown timer, radio receiver, etc.) and connect the **Line** terminal of the switching device to the BLACK lead of the transformer supply. Depending on the Jumper settings (see Fig. 3), the remote switching device will activate/deactivate the Pool-To-Spa function and reverse the state of the two relays.

WIRING INFORMATION - P4243ME

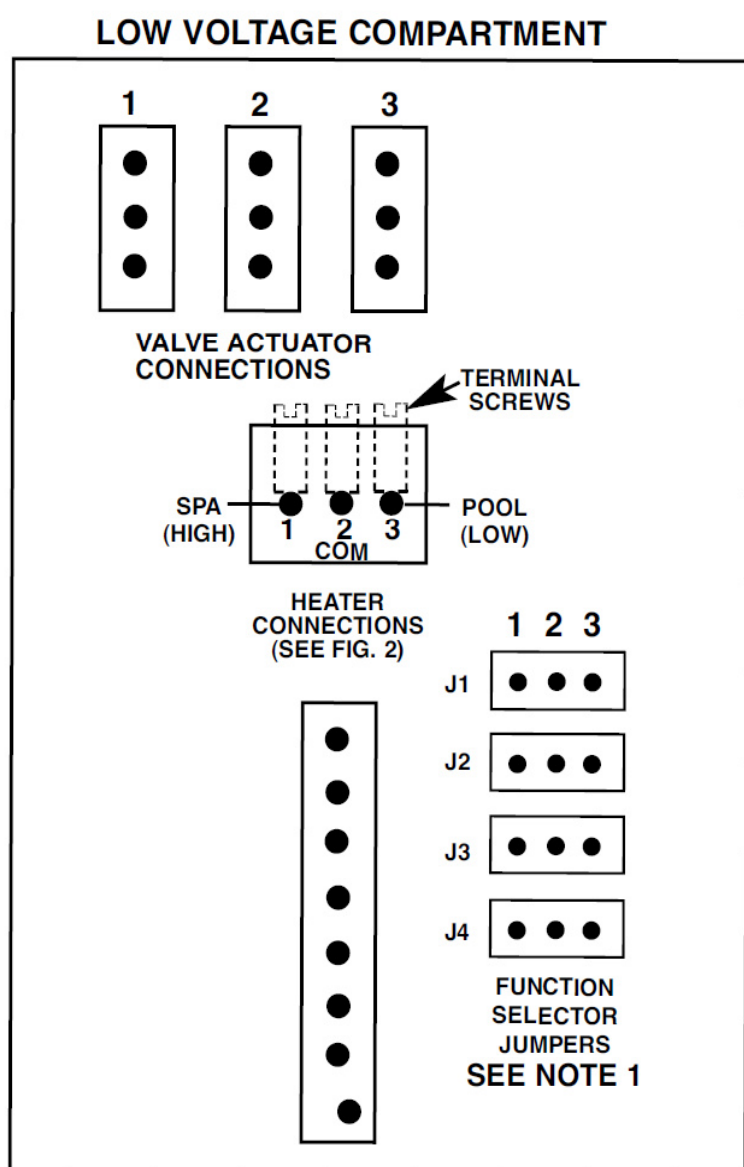


Figure 3 Low Voltage Connections

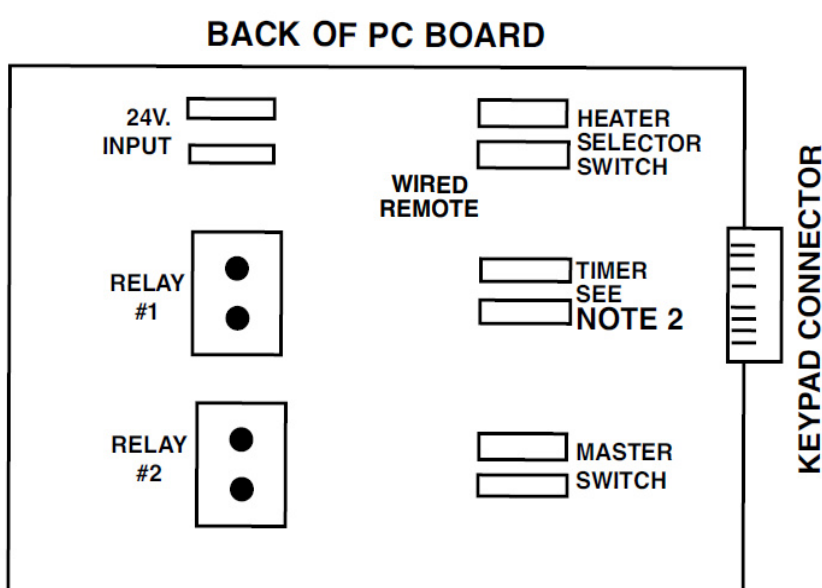


Figure 4 Input/Output Connections

NOTE 1:

FUNCTION SELECTOR JUMPER SETTINGS:

- J1 MASTER SWITCH
1-2 Latching
2-3 Momentary
- J2 RELAY #1
1-2 ON - SPA/OFF - POOL
2-3 ON - POOL/OFF - SPA
- J3 RELAY #2
1-2 ON - SPA/OFF - POOL
2-3 ON - POOL/OFF - SPA
- J4 SPARE -
(FOR FUTURE ENHANCEMENT)

Factory setting is 1-2 for all four Jumpers

NOTE 2:

These two terminals are used for the automatic control of the filter pump (relay #1) by an external timer. To make connections to these terminals, follow the steps below:

1. Install 1/4" flag terminal to one end of two #18 gauge stranded wires, long enough to reach timer. Connect wires to these two terminals.
2. Run wires through the LOW VOLTAGE channel. (See Note on page 2 after step 5.)

3. Connect the other end of the wires to the **dry contacts (no voltage) of a suitable timer.** Important, make sure the clock supply is separate from the contacts of the timer (See figure 5).

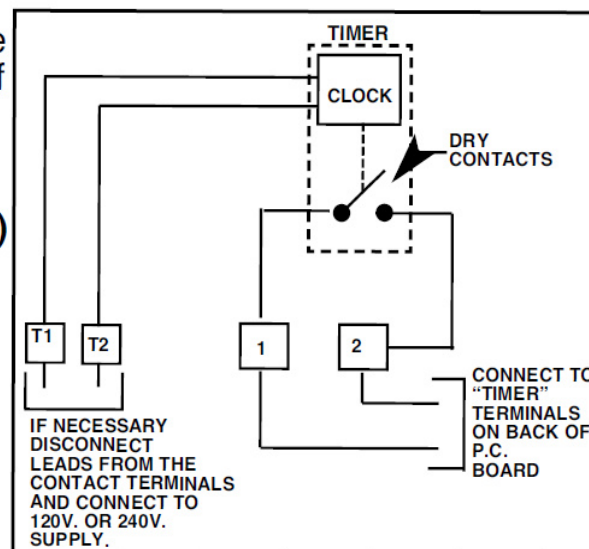


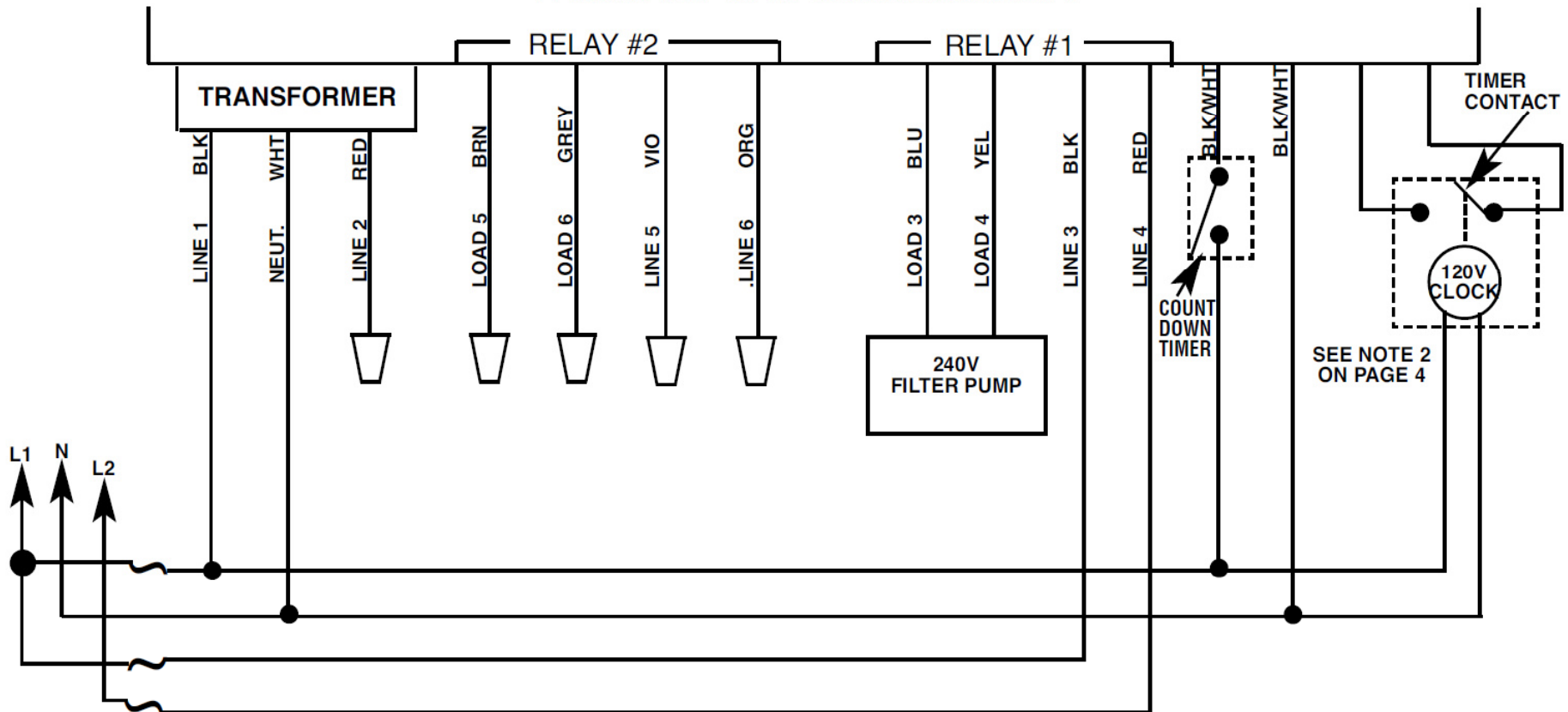
Figure 5 Time Clock

4. Connect specified (120V or 240V) supply to "clock" terminals of timer.
5. Program timer as suited best for the daily filtration cycle(s).

TYPICAL APPLICATIONS - P4243ME

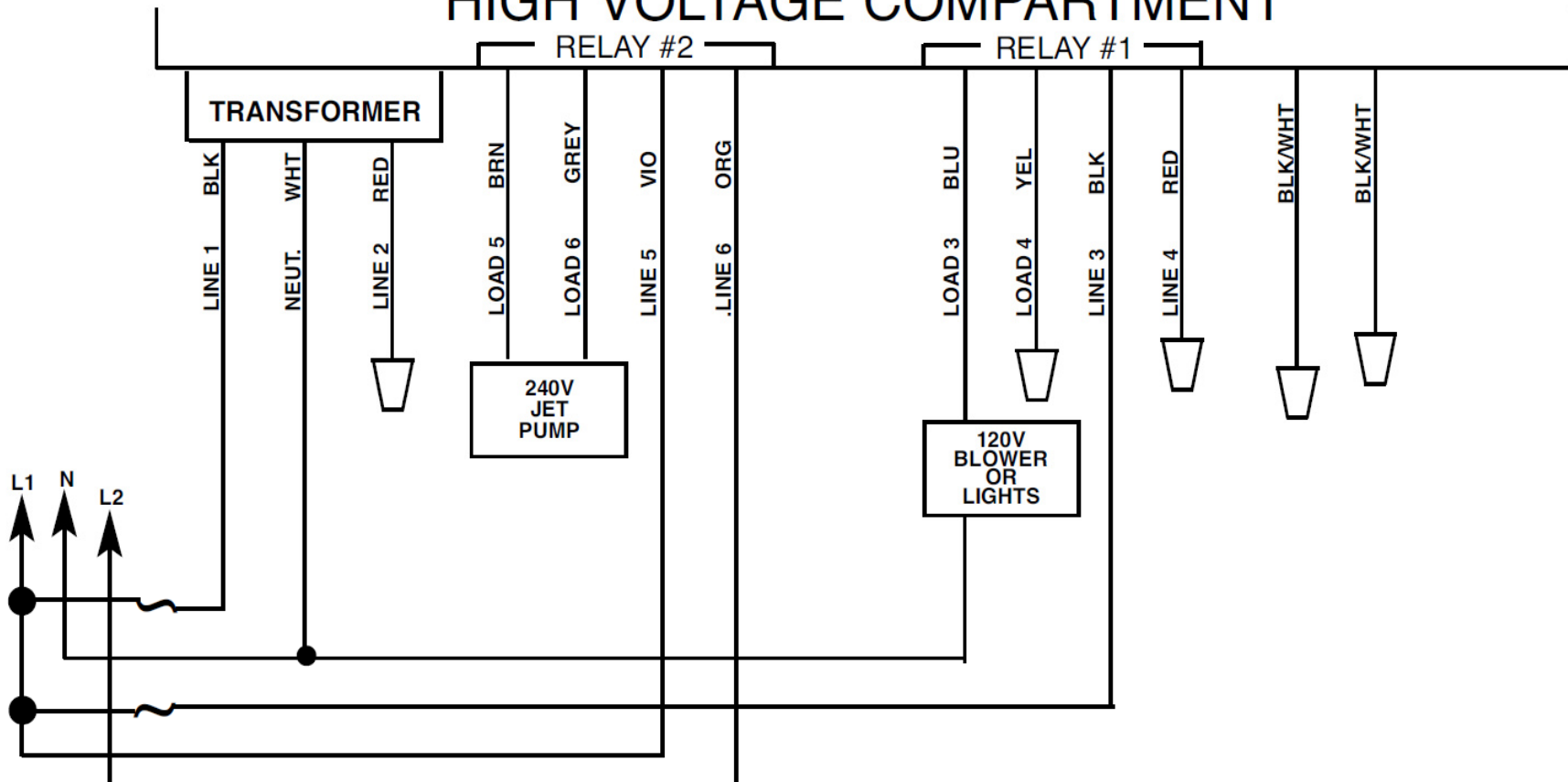
Example #1 240V. Filter pump is controlled by a 24 hour timer or by a toggle switch in pool mode. Count-down Timer is to switch valves, heater and turn ON/OFF the filter pump. Relay #2 is not used.

HIGH VOLTAGE COMPARTMENT WIRING INFORMATION



Example #2 Filter pump runs continuously or when the SPA is likely in use and controlled by its own timer. Spa Equipment (valves, heater, jet pump and light) is controlled by the Wired Remote.

HIGH VOLTAGE COMPARTMENT



OPERATION - P4243ME

Filter Pump Operation

If the Filter Pump is independently controlled by a timing device, follow instructions supplied by the device. If the timing device is connected to this Control and the Pump is connected to Relay 1 of this control, refer to Relay 1 Operation below.

Master Switch Operation

The remote switch, if installed rotates valves, turns ON/OFF the Filter Pump, switches heater thermostats HIGH/LOW and turns ON/OFF the loads connected to relays 1 and 2.

Valve (Pool to Spa) Operation

Every time the "Valves" button on face of this Control, (or on the wired or wireless remote) is pushed, the direction of the flow of water, if pump is in operation, changes. In addition, the heater thermostats will change from LOW to HIGH or HIGH to LOW.

Relay 1 Operation

Button "Relay 1" on face of this Control is for turning ON/OFF the connected equipment. If the equipment is controlled by a timing device, and it is connected to this Control, the light above the button will blink, while the equipment is in the AUTO-ON mode.

Relay 2 Operation

Button "Relay 2" is for turning ON/OFF the connected equipment.

Heater Switch Operation

Set switch to POOL AND SPA mode if the heater is the DUAL thermostat type and set thermostats on heater to the desired pool and spa water temperatures. Set Switch to SPA ONLY mode if the heater is the SINGLE thermostat type or only the spa water needs to be heated. Set switch to OFF if no heater operation is needed.

TROUBLE SHOOTING

Problem	Cause	Solution
1. External timer will not turn ON/OFF filter pump	a. Pump is connected to AUX. #2 leads.	Connect pump to AUX. #1leads.
2. Nothing works	a. No power to transformer b. 120 Volt is connected to 240 Volt leads c. 240 Volt was connected to 120 Volt transformer leads.	Check power supply Connect 120 Volt supply to Black and White leads Replace defective control unit
3. Remote installed Master Switch will not operate equipment	a. Jumper J1 is on pins 2-3 or missing.	Place Jumper J1 on Pins 1-2
4. Single stage heater works ONLY in pool or spa mode	a. Jumper between terminals 1 and 3 of heater terminal block (See Fig. 2) is missing	Install jumper- see Fig. 2
5. Two stage heater works ONLY in pool or spa mode	a. Common lead is connected to wrong terminal	Connect "Common"lead to terminal #2
6. Wired remote is not working	a. Connector is incorrectly attached b. Corroded/dirty connector pins	Re-attach 8-pin connector Clean connector pins.
7. Valve actuators work opposite pump relay	a. Actuators are out-of-sync	Synchronize actuators (Refer to valve actuator manual)

ONE YEAR LIMITED WARRANTY

If within one (1) year from the date of purchase, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it, at its sole option, free of charge. This warranty is extended to the original household purchaser only and is not transferable. This warranty does not apply to: (a) damage to units caused by accident, dropping or abuse in handling, acts of God or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product; (e) sealed lamps and/or lamp bulbs, LED's and batteries; (f) the finish on any portion of the product, such as surface and/or weathering, as this is considered normal wear and tear; (g) transit damage, initial installation costs, removal costs, or reinstallation costs.

INTERMATIC INCORPORATED WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY MODIFIED TO EXIST ONLY AS CONTAINED IN THIS LIMITED WARRANTY, AND SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) mailing the product, along with proof of purchase, postage prepaid to the authorized service center listed below. This warranty is made by: Intermatic Incorporated/After Sales Service/7777 Winn Rd., Spring Grove, Illinois 60081-9698/815-675-7000 <http://www.intermatic.com> Please be sure to wrap the product securely to avoid shipping damage.

Because of our commitment to continuing research and improvements, Intermatic Incorporated reserves the right to make changes, without notice, in the specifications and material contained herein and shall not be responsible for any damages, direct or consequential, caused by reliance on the material presented.

INTERMATIC INCORPORATED, SPRING GROVE, IL 60081-9698
<http://www.intermatic.com>