



By **INTERMATIC®**

**FREEZE PROTECTION FOR POOLS AND SPAS**

## INSTALLATION OPERATION & SERVICE MANUAL

# MODEL: PF1202T TWO CIRCUIT POOL EQUIPMENT CONTROL WITH FREEZE PROTECTION IN RAINPROOF ENCLOSURE

ELECTRICAL RATING: 3 HP MAX. - 240 VOLT, 60 HZ.

SUITABLE FOR POOL/SPA EQUIPMENT CONTROL

### **DANGER! To Reduce the Risk of Injury:**

...do not permit children to operate the Control Unit 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(s) connected to it. THIS CONTROL IS NOT TO BE USED AS A POWER DISCONNECT.

### **READ, FOLLOW & SAVE THIS INSTRUCTION MANUAL**

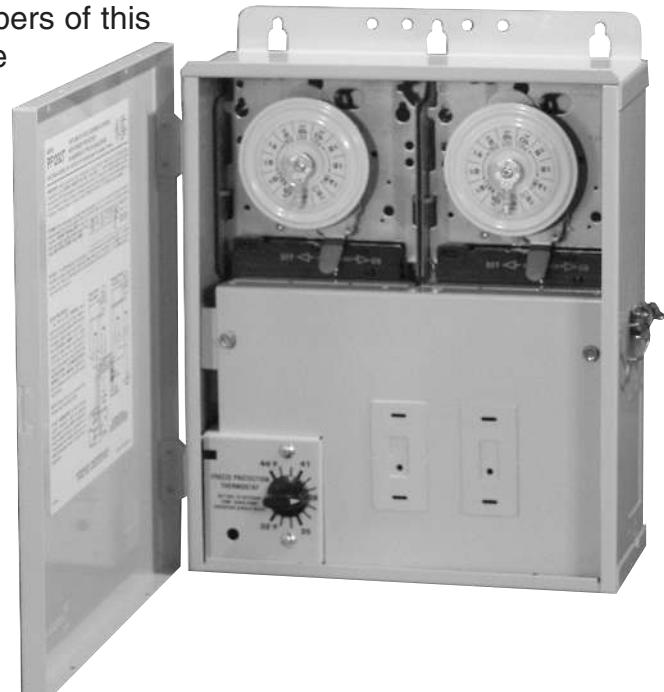
## GENERAL INFORMATION

This Pool Equipment Control is designed to automatically operate the Filter Pump, Cleaner Pump and also to provide freeze protection for the pool equipment. Nevertheless this product is not intended to be a substitute for insulation, coverings, or maintenance.

THE FILTER PUMP TIME SWITCH is located in the upper left side of the enclosure and operates the Filter Pump, as set by the trippers on the yellow dial, on a 24 hour schedule. For setting the schedule, refer to page 3 of this Manual.

THE CLEANER PUMP TIME SWITCH is located in the upper right side of the enclosure and operates the Cleaner Pump (Booster Pump). The trippers of this Time Switch should be set so that the operation of the Cleaner Pump falls within the operation of the Filter Pump. To avoid equipment damage, the two Time Switches are interlocked and the Cleaner Pump would not operate unless the Filter Pump is already operating.

THE FREEZE PROTECTION THERMOSTAT is located in the lower left side of the enclosure and turns ON the Filter Pump when the air temperature (where the Control Panel is located) drops below the temperature set by the dial (between 32°F and 45°F).

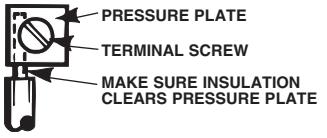


## IMPORTANT SAFETY INSTRUCTIONS

When installing and operating this electrical control and other associated equipment, basic safety precautions should always be followed, including the following:

1. Read and follow all instructions.
2. This Control must be installed by a qualified electrician, according to National and Local Electrical Codes.
3. Install this Control not less than 5 feet of inside edge of pool. USE COPPER CONDUCTORS ONLY.
4. Do not exceed the maximum ratings of individual components, wiring devices, and current carrying capacity of conductors.
5. For grounding and bonding this Control and the installation, refer to section 680 of the National Electrical Code.
6. The Control should not operate any equipment which would cause bodily injury or property damage should it be activated unexpectedly.

## INSTALLATION

1. Select the proper location for the Control Panel and prepare the necessary conduit run(s) required by the installation layout.
2. Remove the four #10 hex head screws from the back of the enclosure and attach mounting brackets to enclosure.
3. Hang enclosure on a flat vertical surface or other support, using hardware suitable for the purpose.
4. Properly terminate conduits at both ends and pull-in the conductors as specified by the installation layout.  

5. Follow wiring diagram on page 4 of this Manual, connect LINE1 and LINE 2 OF THE 240 Volt supply conductors from a 20 Amp. circuit breaker, either in the main panel or in this subpanel to TB1 terminal block (see insert above for proper connection) and the grounding conductor to the Equipment Grounding Terminal.
6. Connect Filter Pump leads to terminals 2 and 4 of Filter Pump Time Switch and Cleaner Pump leads to terminals 2 and 4 of Cleaner Pump Time Switch. Connect the grounding leads of each pump to the Equipment Grounding Terminal at the bottom of the enclosure.
7. If the Control Panel is installed in location, where it is exposed to direct sun most of the day, extend 8 inches of the copper capillary tube of the thermostat into an open ended (plastic or metal) conduit, about 10 inches long, installed at bottom of the enclosure. **Handle capillary tube with care!**
8. If required by the heater manufacturer, install fireman switch kit 156T4042A (not furnished) on Time Switch Plate and make the fireman switch connections. Use at least #18 AWG wiring with insulation rated 300 Volt or higher. Place heater ON/OFF switch on heater to ON (see Figure 2). Some heaters may require a special connecting harness, contact heater manufacturer for details.
9. To install additional wiring devices inside the enclosure, first remove rectangular knock-out(s) in dead front. Next, remove hex head screws in back of

enclosure and install stand-offs\* in place of screws. Attach wiring device to stand-offs.

- Stand-offs are not furnished. Order 21T156A for a set of four (4) stand-offs and mounting hardware.

10. If external bonding is required, install bonding lug(s) on bottom of enclosure (156T11047A may be ordered) and bond installation according to code requirements.

### 11. TEST INSTALLATION:

- a. Turn the thermostat dial to its lowest setting and place crushed ice (in plastic bag) inside capillary coil of Thermostat.
- b. Turn ON power to Control Panel, wait 20 seconds then slowly turn thermostat dial counter-clockwise until Filter Pump starts.
- c. Using the manual lever on Cleaner Time Switch, turn ON-OFF the Cleaner Pump.
- d. Turn OFF power to Control Panel, remove ice, check wiring, tighten terminal screws if necessary, reinstall time switch insulators and front plate.
- e. Turn ON power to Control Panel and set time Switches and the Thermostat, see OPERATION instructions on page 3.

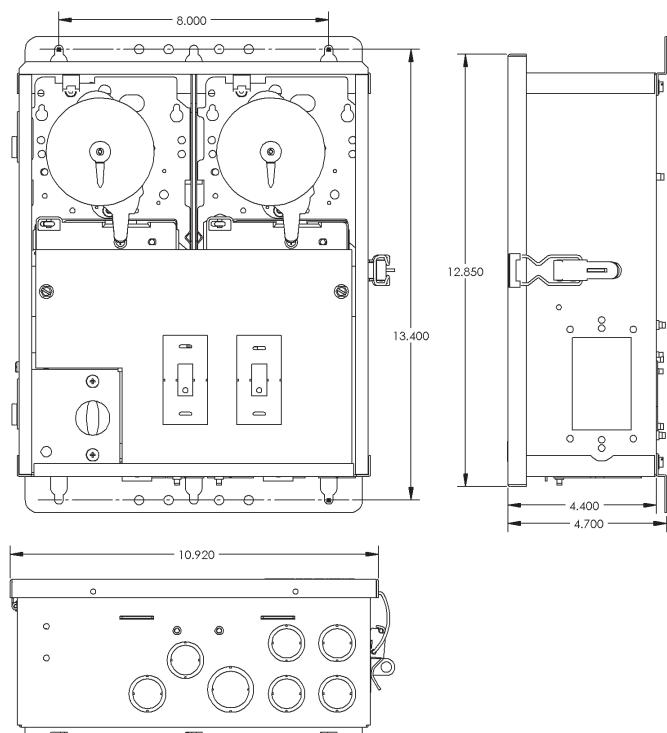


Figure 1

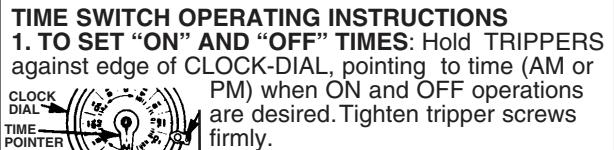
## OPERATION

TO SET FILTER TIME SWITCH, follow instructions on the right. The length of the daily filtration/heating cycle depends on many variables such as size, shape, and geographic location of the pool, water chemistry, type of pool equipment, usage and season of year. If not sure, contact your local pool service professional for advice.

TO SET CLEANER TIME SWITCH, follow instructions on the right. NOTE: This Control is factory wired to prevent equipment damage by allowing the Cleaner Pump to operate only when the Filter Pump is already operating. This requires that the Cleaner Time Switch settings (ON and OFF times) must be within the operating hours of the Filter Pump. For example: If the Filter Pump is set to operate from 8 am to 2 pm daily, the Cleaner Pump Time Switch should be set to operate no longer than 8:30 am to 1:30 pm.

TO SET THERMOSTAT, turn dial, pointing to desired temperature, marked on the plate, between 32°F and 45°F. Again, many variables must be considered before selecting the "turn ON" temperature of the Filter Pump and your local pool service professional is the best source of information. The Thermostat is factory set to turn OFF the Filter Pump when the ambient temperature rises 5°F above its set point.

THE FIREMAN SWITCH (Heater Protection Mechanism), if installed, is factory set and shuts OFF the heater 20 minutes before the Time Switch turns OFF the filter pump. The Fireman Switch requires no setting or service.



**2. TO SET TIME-OF-DAY:** Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the **POINTER**.

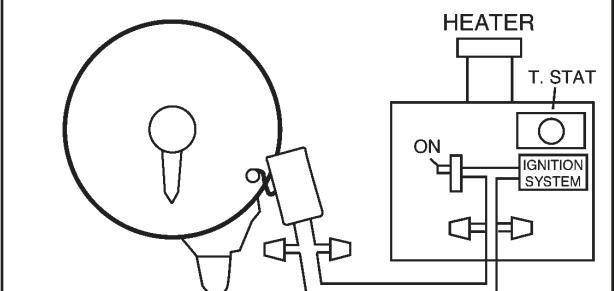
— DO NOT MOVE POINTER —

- **TO OPERATE SWITCH MANUALLY:** Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not affect next operation.

- FOR MORE THAN ONE DAILY ON-OFF

**OPERATION:** Place additional tripper pairs on CLOCK-DIAL (order 156T1978A).

- **IN CASE OF POWER FAILURE**, reset CLOCK-DIAL to proper time-of-day. See step 2 above.



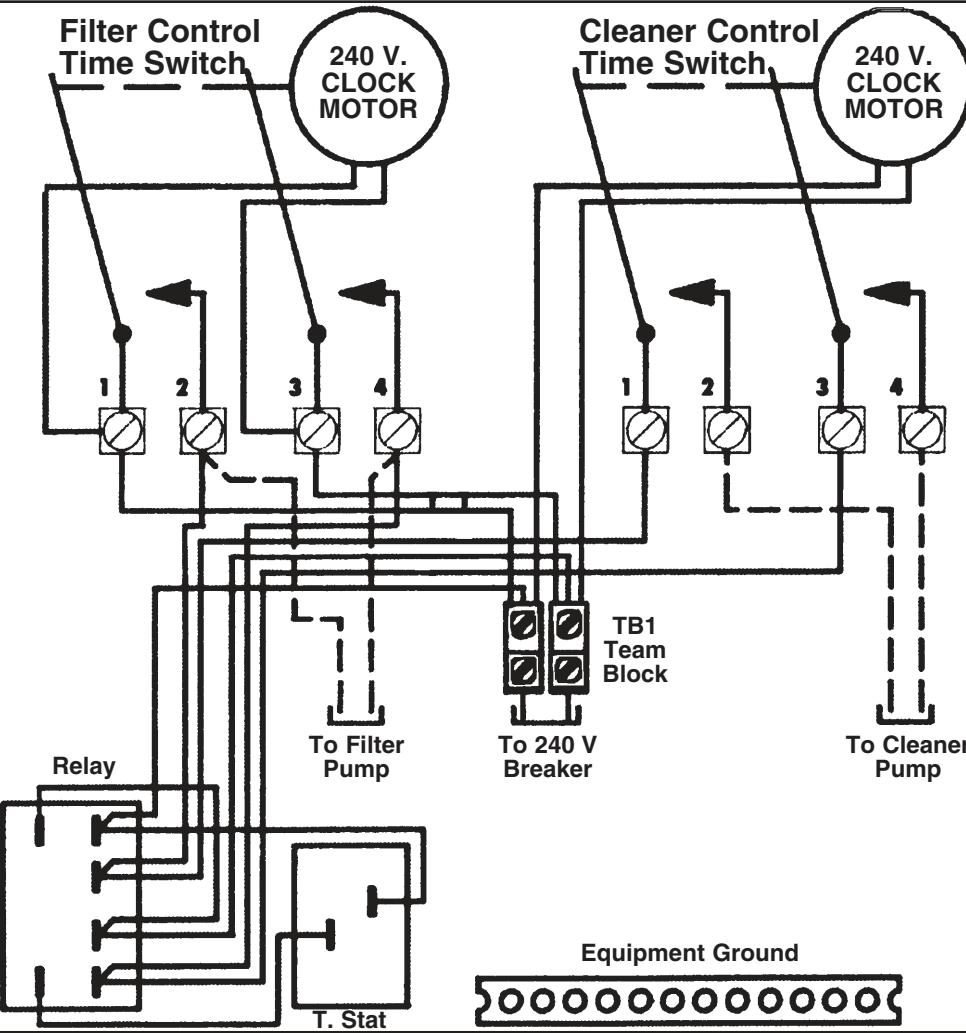
**WARNING:** Do not disconnect high limit or pressure switches.

## **TROUBLESHOOTING**

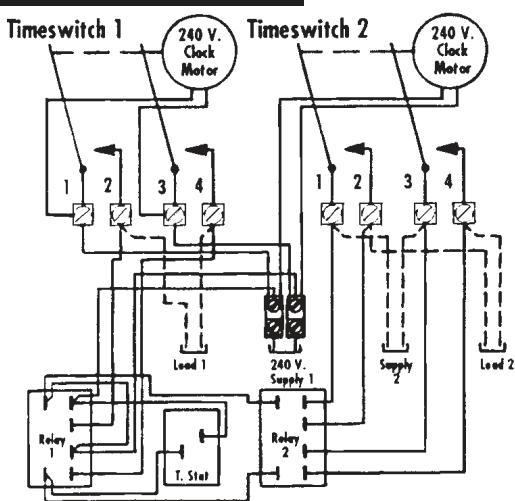
| SYMPTOM   | CAUSE(S)  | CORRECTIVE ACTION   |
|---|---|---|
| 1. Time Switch will not keep time - dial is turning.    | 1a. Frequent power outages<br>1b. Wrong voltage/cycle<br>1c. Loose clock motor connections                                | Reset dial<br>Change clock motor<br>Check connections                         |
| 2. Time Switch Dial stops at ON or OFF tripper.         | 2a. Loose tripper<br>2b. Bent dial<br>2c. Defective motor   | Check/change tripper<br>Check/change mechanism<br>Change clock motor          |
| 3. Load is ON at all times-- dial is turning.           | 3a. Welded contacts<br>3b. Two ON-trippers on dial<br>3c. No OFF tripper on dial<br>3d. Defective mechanism               | Change mechanism<br>Change tripper<br>Change tripper<br>Change mechanism      |
| 4. Dead clock motor. (Clock motor gears do not rotate.) | 4a. Defective clock motor (open coil due to lightning or surge)<br>4b. Loose clock motor connections<br>4c. Wrong voltage | Change clock motor<br><br>Check connections<br>Change clock motor             |
| 5. Filter Pump will not start when temp. is below 32°F. | 5a. Defective thermostat<br>5b. Defective relay<br>5c. Faulty wiring<br>5d. Power outage                                  | Replace thermostat<br>Replace relay<br>Check wiring<br>Install stand-by power |

# WIRING DIAGRAM

NOTE: Ground connections are not shown and vary with installation.



## ALTERNATE WIRING FOR TWO INDEPENDENTLY WIRED PUMPS



### WARRANTY

If within one (1) year from the date of installation, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it free of charge.

The warranty does not cover labor for removal or reinstallation and does not apply to: (a) damage caused by accident, abuse, mishandling, or dropping; (b) a unit which has been subject to unauthorized repair; (c) units not used in accordance with directions; (d) damages exceeding the cost of the product. Some states do not allow a limitation of damages so the foregoing warranty may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This warranty service is available, if the defective product or its defective component is returned with proof of purchase and date of installation, either (a) to the dealer from whom the unit was purchased or (b) by shipping prepaid to Intermatic, Incorporated, Intermatic Plaza, Spring Grove, IL 60081-9698.

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