MiniMax NT Heater Single Voltage
6800 Temperature Controller Retrofit Kit (472099)
Installation Instructions

Table of Contents

⚠WARNING

FOR YOUR SAFETY - READ BEFORE OPERATING

Warning: This product must be installed and serviced by a professional service technician qualified in pool/spa heater installation and maintenance. If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life. For additional free copies of these instructions; call (800) 831-7133.

Important Notice

Attention Installer.

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

Pentair Pool Products, Inc.

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A. INSTALLATION

1. Turn off the electrical power to the heater.
2. Open the heater's right door.
3. Disconnect all wires from the 7800 Temperature Controller and the Ignition Module.
4. Remove the left and right doors from the heater if necessary.
5. Remove six screws on the rear cover of the 7800 Temperature Controller.
   (**NOTE:** *Please discard the cover, not used.*) Then, remove the cover, the PC board, and the front face carrier.
6. Install the 6800 Temperature Controller, (provided in the kit), by using four screws only. See Figure 1.
7. Remove two screws on existing Ignition Module and replace with new Ignition Module using the same two screws, (provided in the kit).

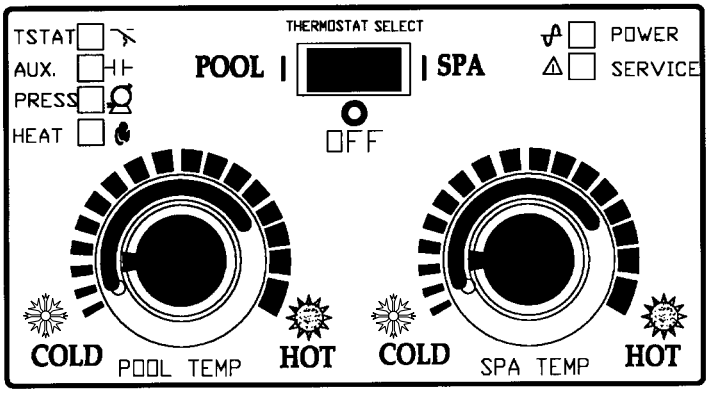
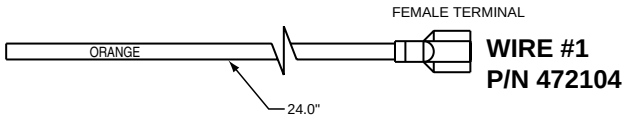


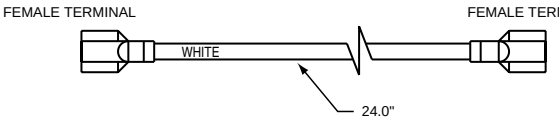
Figure 1.

B. WIRES IDENTIFICATION

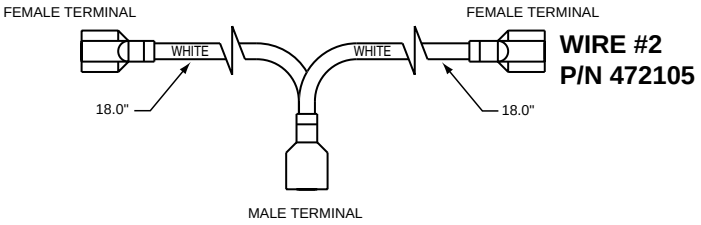
The following items are new wire assembly, (provided in the kit).



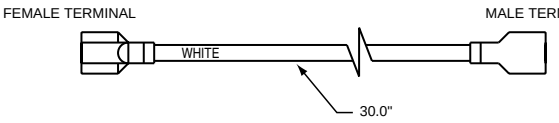
WIRE #1
P/N 472104



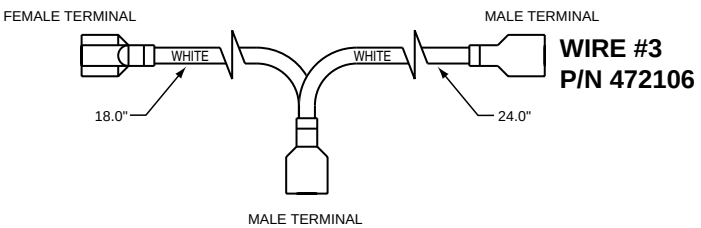
WIRE #5
P/N 471129



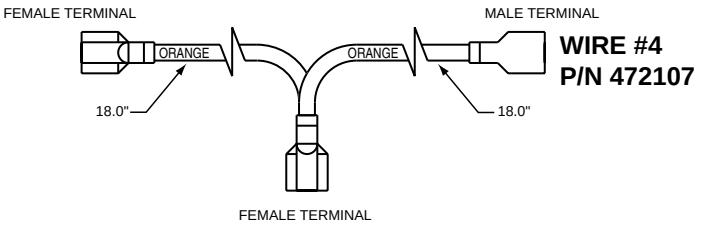
WIRE #2
P/N 472105



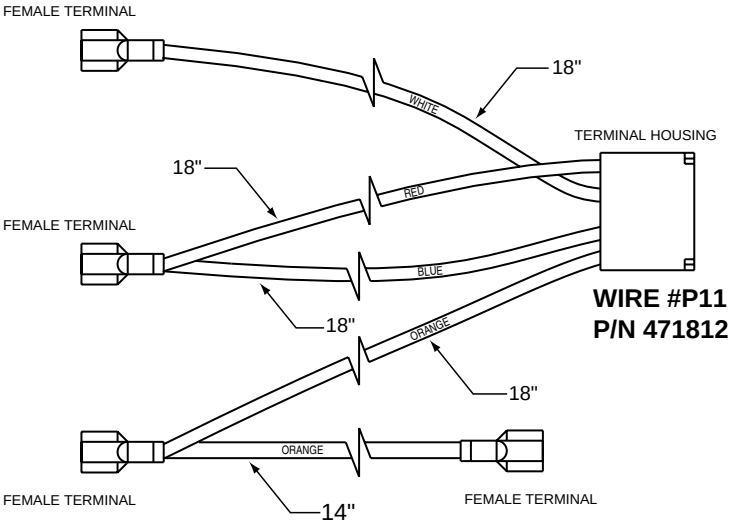
WIRE #6
P/N 471763



WIRE #3
P/N 472106



WIRE #4
P/N 472107



WIRE #P11
P/N 471812

C. WIRING

1. Look at the existing wiring diagram on the left door and find out what model of the NT heater you have from top of wiring diagram.

NOTE

First check the three terminals on your blower. If there are male terminals, please cut them and replace with female terminals, (provided in the kit).

- **If you see "MiniMax NT 400 Low NOx" that means your heater is Single Voltage *Dual Speed* (SVDS):** Replace the new wiring diagram for SVDS. The label is provided in the kit, (P/N 472084).
- Please see **Figure 2 for SVDS** and follow the instructions below exactly.
  a. Reconnect existing wire P7 to J7, P9 to J9, and P10 to J10 respectively on the 6800 control board.
  b. Reconnect the existing white wire from Low Gas Pressure Switch to "TH" on the Ignition Module.
  c. Reconnect the existing 5-pin Mate-N-Lok Plug (with gray, black, white and blue wires) to Ignition Module. The male terminals of gray and blue wire connect to Hot Surface Igniter (HIS #1).
  d. Connect ***new wire #P11*** to J11. Then, connect the common female terminal, orange wire, to "IND" on the Ignition Module; next, connect the common female terminal, (red/blue) wire, to "VAL" on the Ignition Module.
  e. Connect existing wire P4 to J4 but using "splice" to connect ***new wire #1*** (orange). The female terminal connect to "24VAC" on Ignition Module.
  f. Connect ***new wire #2*** (white). The common male terminal connect to white wire of P11; the 1st female terminal connect to "GND" on the Ignition Module; the 2nd female terminal connect to "RET" on the Fan Board.
  g. Connect ***new wire #3*** (white). The common male terminal connect to white wire of the Blower; the female terminal connect to F1 terminal of Ignition Module; the other female terminal connect to Hot Surface Igniter (HIS #2).
  h. Connect ***new wire #4*** (orange). The common female terminal connect to "24 VAC" on the Fan Board; the female terminal connect to "PC" on the Fan Board; the male terminal connect to orange wire of P11.
  i. Connect the ***new wires #5*** (white), from F2 of Ignition Module to Terminal Block #4.
  j. Install the In-Line Fuse (provided in the kit) between the Hot Surface Ignitor (HSI #2) and the blower, see Wiring Diagram (Figure 2).
- **If you see "MiniMax NT 250 Low NOx" that means your heater is Single Voltage *Single Speed* (SVSS):** Replace the new wiring diagram for SVSS. The label is provided in the kit, (P/N 472088).
- Please see **Figure 3 for SVSS** and follow the instructions below exactly.
  a. Reconnect existing wire P7 to J7, P9 to J9, and P10 to J10 respectively on the 6800 control board.
  b. Reconnect the existing white wire from Low Gas Pressure Switch to "TH" on the Ignition Module.
  c Reconnect the existing 5-pin Mate-N-Lok Plug (with gray, black, white and blue wires) to Ignition Module. The male terminals of gray and blue wire connect to Hot Surface Igniter.
  d. Connect ***new wire #P11*** to J11. Then, connect the common female terminal (orange) wire to the Air Pressure Switch; then connect the female terminal (orange) wire to the "IND" on the Ignition Module; next, connect the common female terminal (red/blue) wire to "VAL" on the Ignition Module; last, connect the female terminal (white) wire to "GND" on the Ignition Module.
  e. Connect existing wire P4 to J4 but using "splice" to connect ***new wire #1*** (orange). The female terminal connect to "24VAC" on Ignition Module.
  f. Connect the ***new wires #5*** (white) from F2 of Ignition Module to Terminal Block #4.
  g. Connect the ***new wire #6*** (white) from F1 of Ignition Module to the white wire of the Blower.

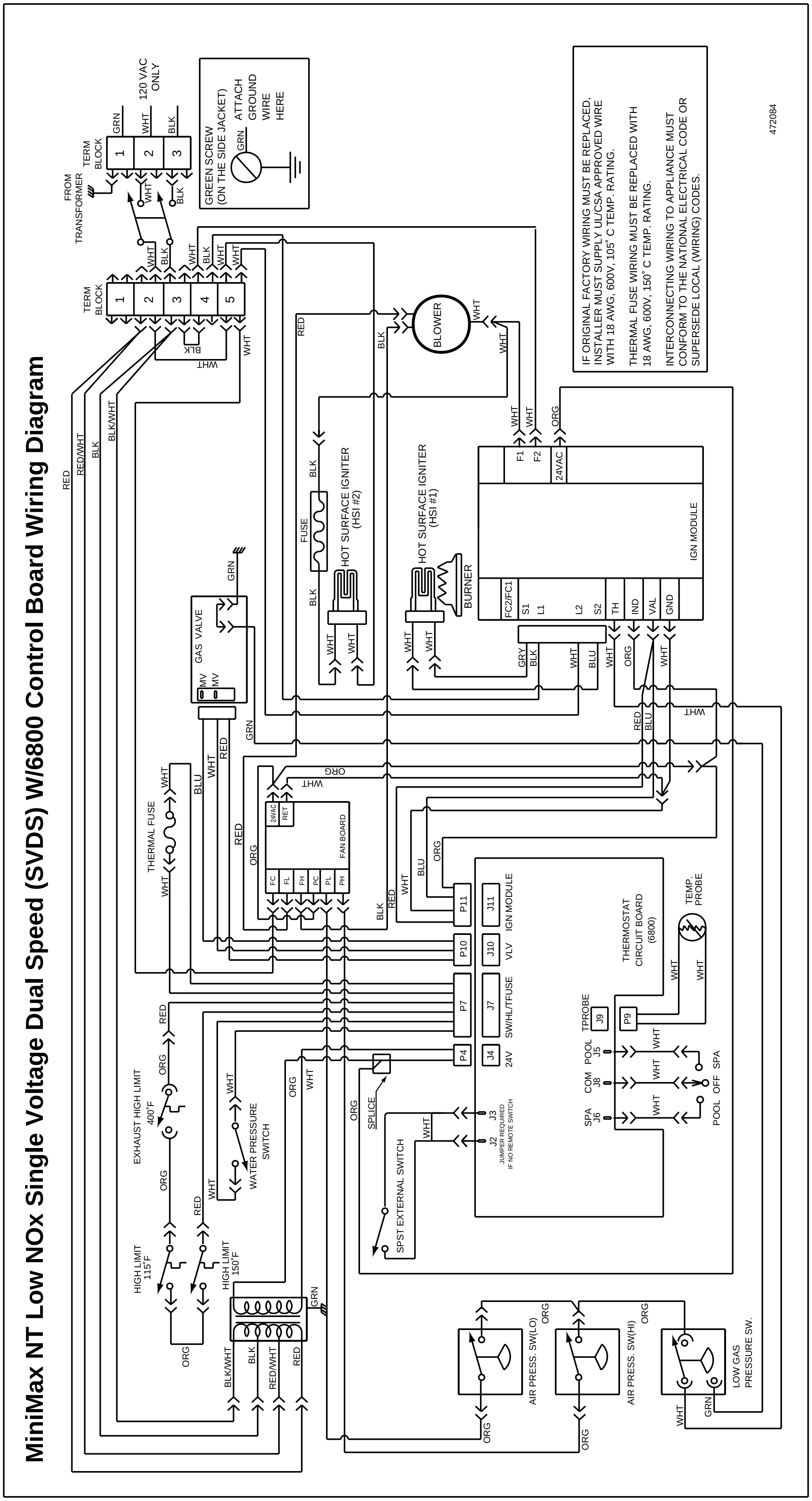
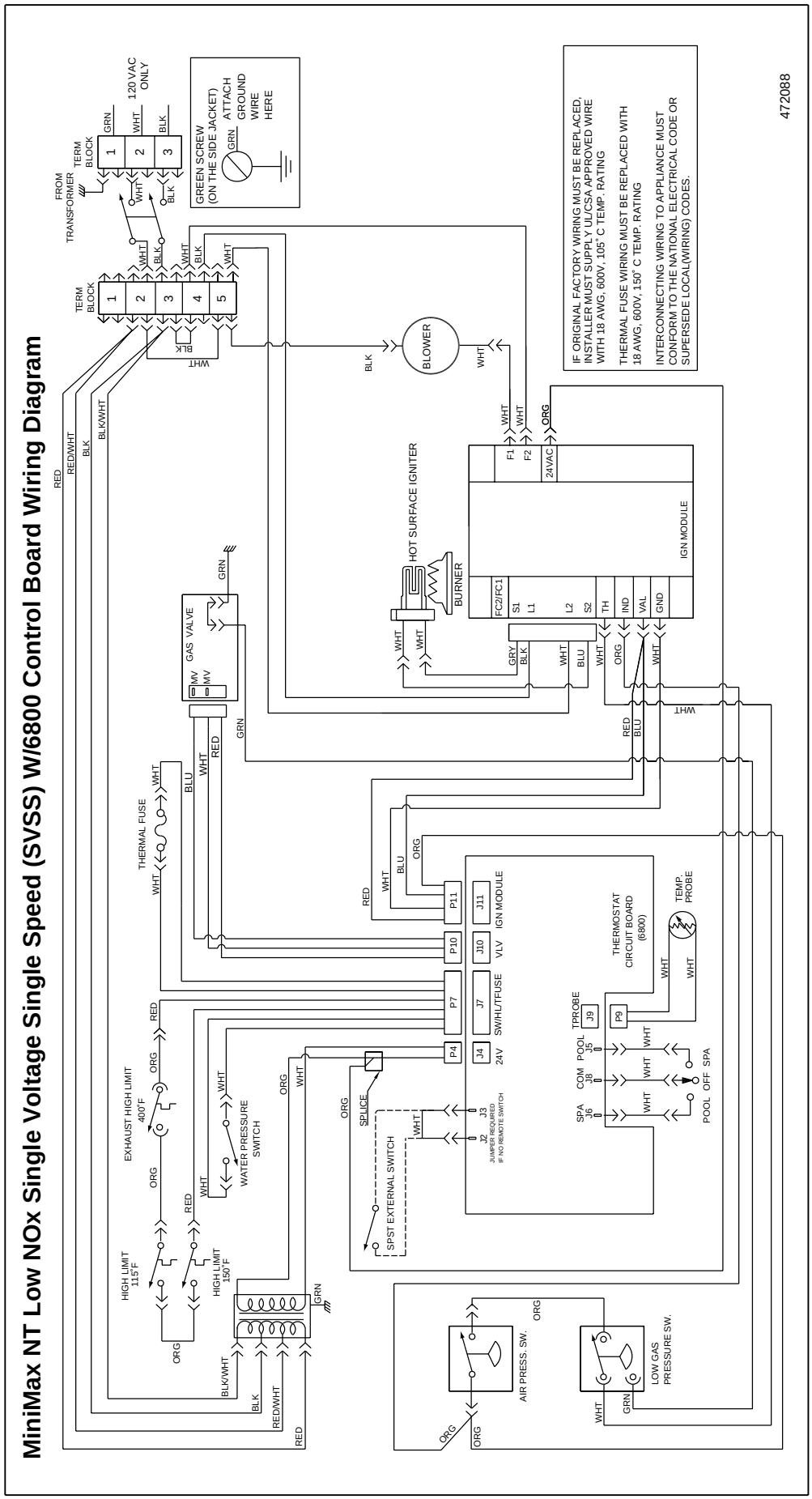

MiniMax NT Low NOx Single Voltage Dual Speed (SVDS) W/6800 Control Board Wiring Diagram
IF ORIGINAL FACTORY WIRING MUST BE REPLACED, INSTALLER MUST SUPPLY UL/CSA APPROVED WIRE WITH 18 AWG, 600V, 105° C TEMP. RATING.
THERMAL FUSE WIRING MUST BE REPLACED WITH 18 AWG, 600V, 150° C TEMP. RATING.
INTERCONNECTING WIRING TO APPLIANCE MUST CONFORM TO THE NATIONAL ELECTRICAL CODE OR SUPERSEDE LOCAL (WIRING) CODES.
GREEN SCREW (ON THE SIDE JACKET) ATTACH GROUND WIRE HERE
120 VAC ONLY
FROM TRANSFORMER
TERM BLOCK
BLOWER
HOT SURFACE IGNITER (HSI #2)
HOT SURFACE IGNITER (HSI #1)
BURNER
IGN MODULE
GAS VALVE
THERMAL FUSE
FAN BOARD
THERMOSTAT CIRCUIT BOARD (6800)
TEMP. PROBE
EXHAUST HIGH LIMIT 400°F
WATER PRESSURE SWITCH
HIGH LIMIT 115°F
HIGH LIMIT 150°F
SPST EXTERNAL SWITCH
SPLICE
AIR PRESS. SW(LO)
AIR PRESS. SW(HI)
LOW GAS PRESSURE SW.
472084

Figure 2.


MiniMax NT Low NOx Single Voltage Single Speed (SVSS) W/6800 Control Board Wiring Diagram
472088
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TERM BLOCK
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IGN MODULE
THERMAL FUSE
EXHAUST HIGH LIMIT 400°F
WATER PRESSURE SWITCH
HIGH LIMIT 115°F
HIGH LIMIT 150°F
SPST EXTERNAL SWITCH
SPLICE
JUMPER REQUIRED IF NO REMOTE SWITCH
THERMOSTAT CIRCUIT BOARD (6800)
TEMP. PROBE
TPROBE
POOL OFF SPA
AIR PRESS. SW.
LOW GAS PRESSURE SW.

Figure 3.

D. OPERATION

Dual Temperature Control System

For convenience and economy all MiniMax NT heaters are equipped with two thermostats on the front of the heater control panel; see Figure 1.

THERMOSTAT KNOB STOPPER

Each thermostat is equipped with a mechanical stop that can be locked or unlocked with use of a screwdriver to prevent temperatures in excess of that desired by the user; see Figure 4.

The maximum setting can be adjusted by loosening the screw "A" and turning the stopper dial to desired maximum setting. Lock the setting by tightening the screw. The Mechanical stop is under the knob. Ensure that the knob is stopping at the correct position when the knob is rotated clockwise from a lower temperature position. (See Thermostat Adjustment.)

NOTE

To eliminate error due to piping heat losses, measure pool temperature with an accurate thermometer directly at the pool or spa.

THERMOSTAT ADJUSTMENT

The knob with locking feature eliminates the need for constant thermostat adjustments. Set the knob pointer to the desired pool or spa temperature.

If further adjustment is needed, rotate the knob until the desired temperature is obtained. This knob position corresponding to your desired maximum pool or spa temperature may now be preset (locked) by the knob stopper which prevents the knob from being turned beyond the maximum temperature you set.

POWER (THERMOSTAT SELECT) SWITCH

The Pool/Off/Spa switch allows the heater to be turned off when heating is not desired.

1. "Pool" position - Maintains selected pool temperature.
2. "Off" position - Heater will not come on regardless of drop in pool or spa temperature.
3. "Spa" position - This allows separate control of spa water temperature.

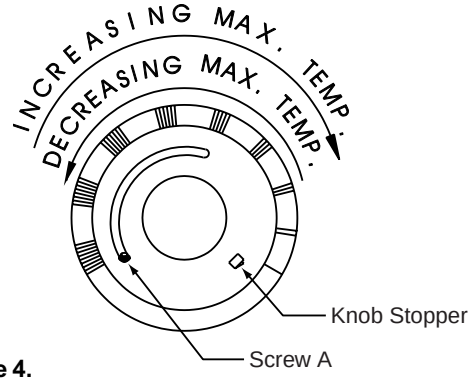


Figure 4.

INDICATOR LIGHT DESCRIPTION

The MiniMax Pool Heater provides nine status indicator lights, six can be seen from the front of the control panel which help you understand the operation of the heater. If something should go wrong, the lights will aid in troubleshooting the problem. Three additional lights can be seen after opening the control panel. These three lights give the service technician advanced troubleshooting capability. All the LED lights are green with the exception of the red service LED.

POWER LIGHT (POWER)

The light is on at all times, in any switch position, indicating 24 VAC power is being supplied to the control circuit. If it fails to light, no other light will be on. Possible causes are: a) external power to the heater is disconnected, check service panel circuit breaker or fuses; b) local circuit breaker inside the transformer has tripped -- investigate cause before resetting; c) transformer has failed.

THERMOSTAT (TSTAT)

This light is on when the thermostat contacts close, signaled by the water temperature falling below the setpoint, calling for the heater to fire to maintain the desired water temperature.

AUXILIARY (AUX)

This light is on when it indicates the remote switch contacts are closed. This allows you to observe if your remote switch is properly closing the heater control circuit. When shipped from the factory a jumper is installed to maintain closed circuit in the absence of a remote switch.

PRESSURE (PRESS)

This light is on when Spa/Pool Selector switch is on, indicates the circulation pump is running properly. If pressure light fails to light, the pump may have lost its prime or water flow may be restricted by an inadvertently closed valve or clogged filter or pump basket. If you have determined that there is no water flow restriction to the heater, you should call a qualified serviceman.

INDICATOR LIGHT DESCRIPTION, *(cont'd.)*

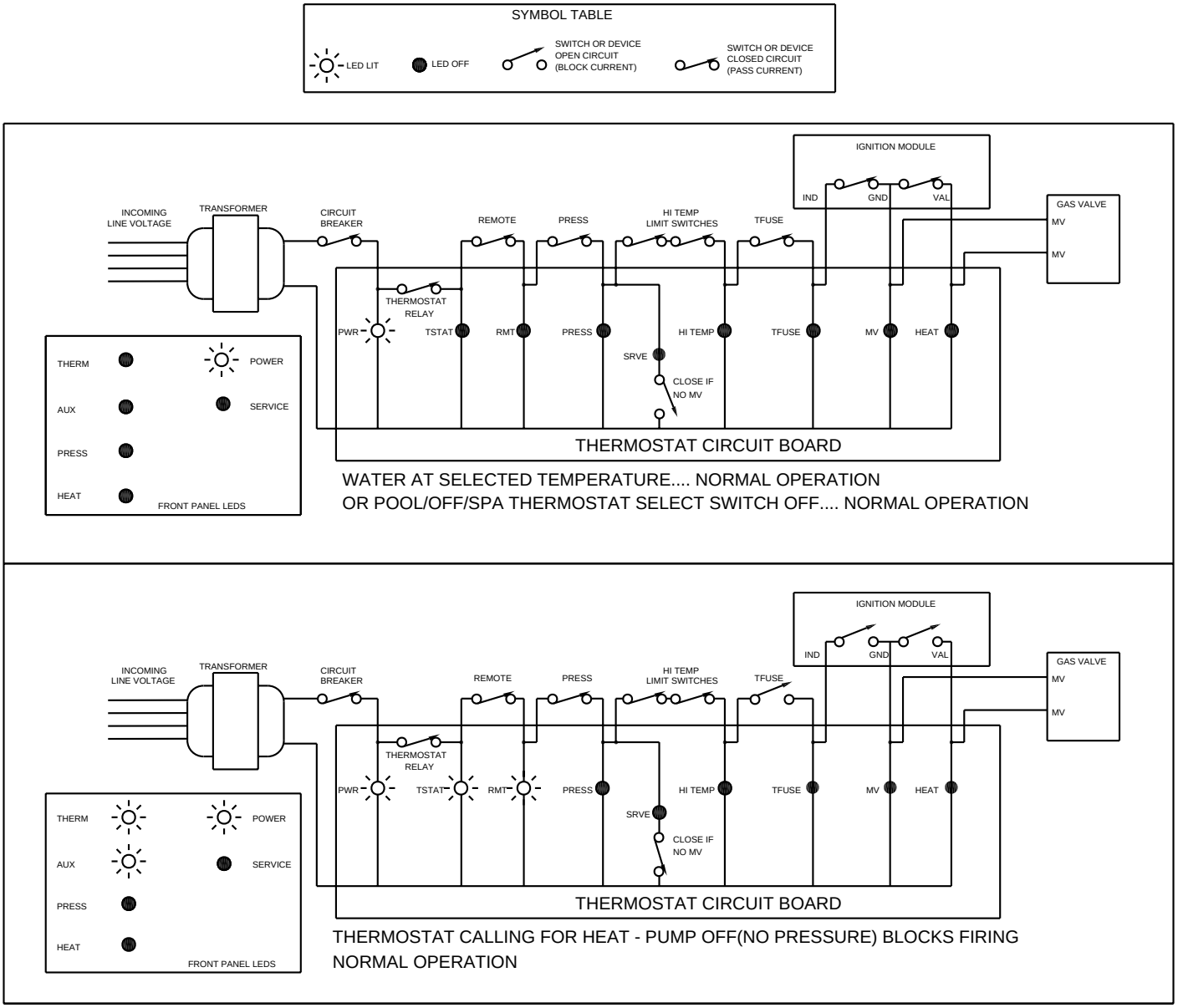
HEAT (HEAT)
The heat light is on any time the thermostat has signaled a call for heat which initializes the ignition safety firing circuit -- the light comes on to indicate successful firing of the main burners.

SERVICE (SERVICE)
The service light is off during normal operation of heater. The light only comes on if a problem with a control has occurred or when the heater is first firing. The problem must be investigated by the serviceman prior to attempts to fire the heater again.

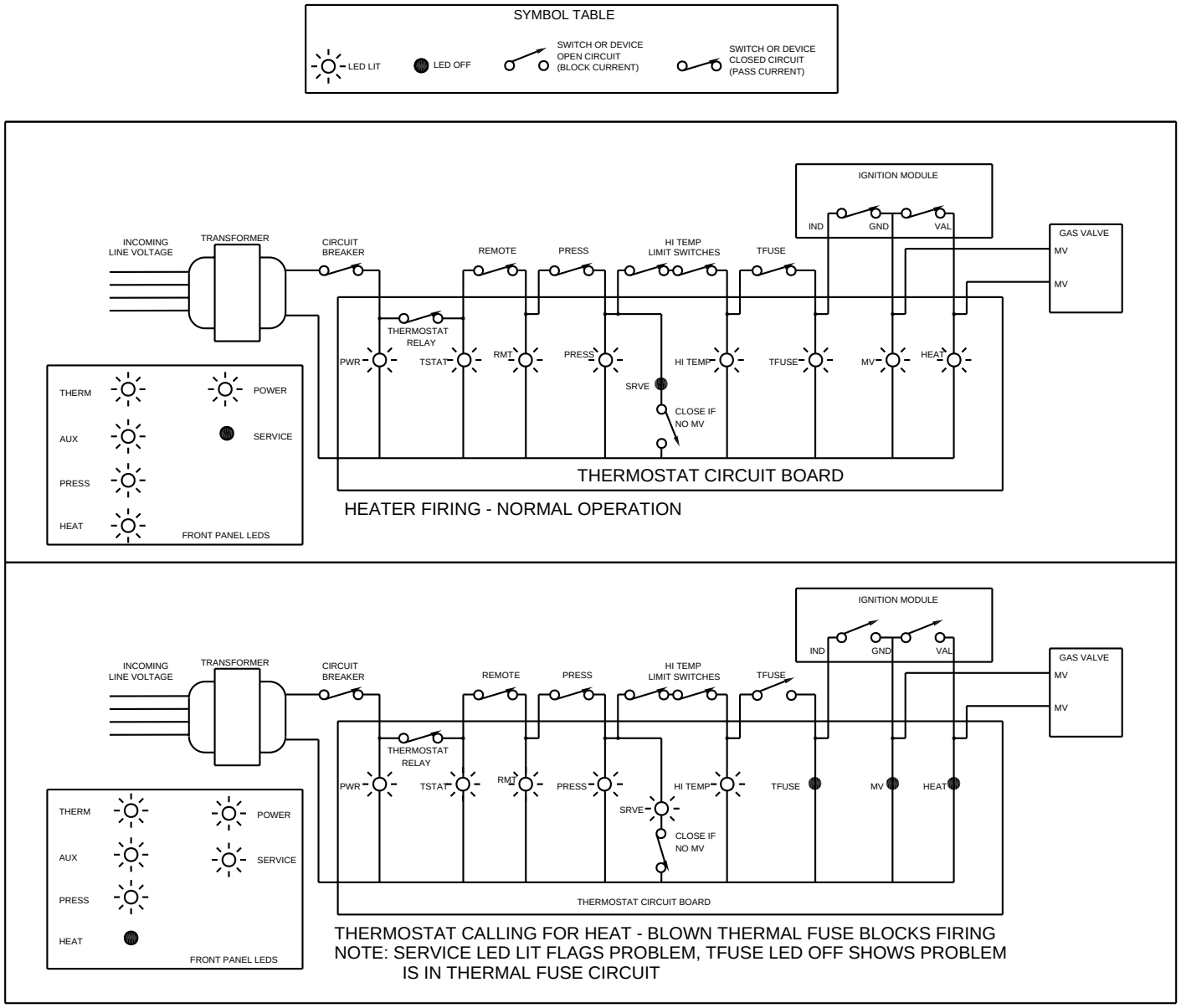
The diagrams that follow give examples of troubleshooting a malfunctioning heater using the assistance of the indicator lights.

E. TROUBLESHOOTING

Example of troubleshooting with the assistance of the indicator lights.



E. TROUBLESHOOTING, *(cont'd.)*



F. RAIN PROTECTION

NOTE

Please ignore the following steps in Section F if the heater has been installed with a rain protection shield.

1. Using the silicon tube (provided in the kit) to seal the 3 sides of the edge. See Figure 5.

⚠WARNING

The edges of the heater door can be sharp. Handle heater door with care when trimming the plastic studs. Failure to do so could result in lacerations from the heater door.

2. Using a knife, slightly trim the plastic stud, (if required), and push it through the plastic barrier. Then insert the pushnuts, included in the kit, onto the plastic stud in order to hold the plastic barrier, (see Figure 5).

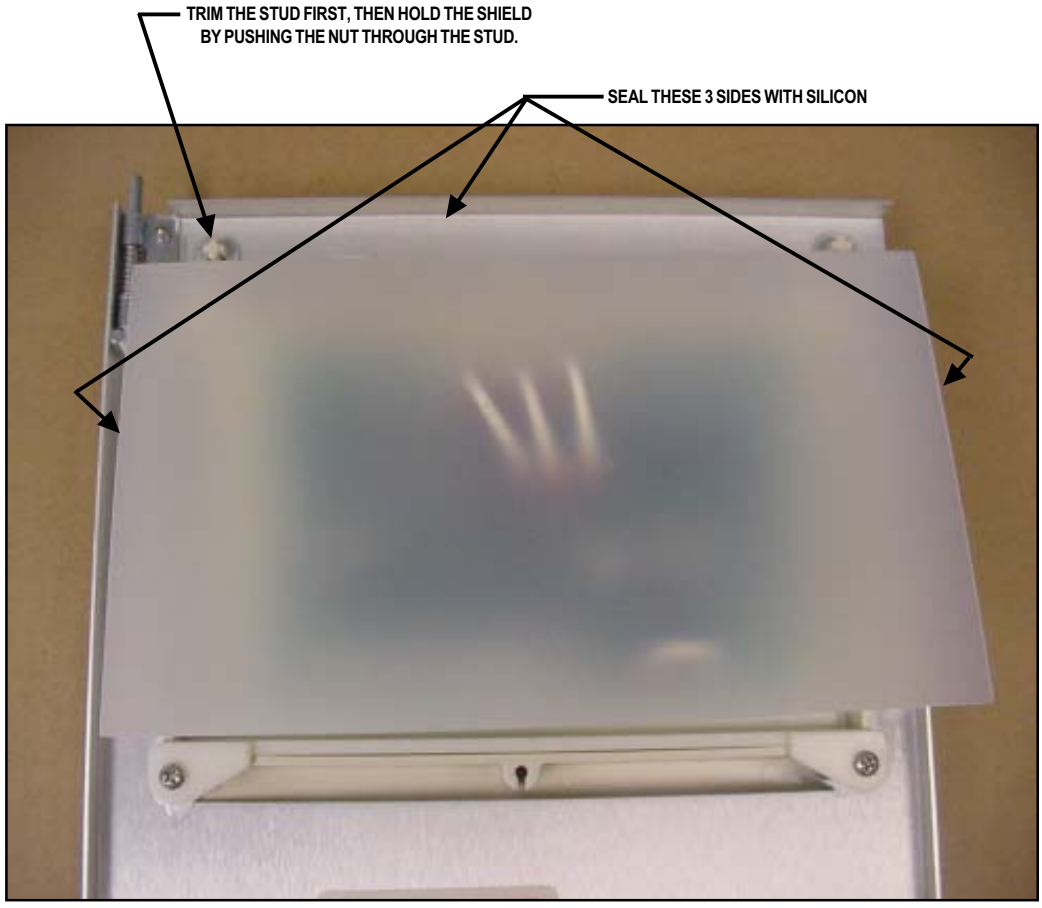


Figure 5.

G. PARTS LIST

P/N	Description	Quantity
071925	Quick Connector, 1/4 in. Female	**3**
471129	Wire #5, White, Female x Female	**1**
471706	Pushnut	**2**
471763	Wire #6, White, Female x Male	**1**
471812	Wire #P11, White/Red/Blue/Orange, with Terminal Housing	**1**
472059	Barrier (Rain Shield)	**1**
472060	Silicon Tube	**1**
472084	Label, Wiring Diagram, NT LN SVDS, Model 400 Only	**1**
472086	Temperature Controller Assembly, 6800	**1**
472088	Label, Wiring Diagram, NT LN SVSS, Models 200/250/300	**1**
472091	Instruction Sheet, 6800 Retrofit Kit	**1**
472094	Splice (Self-Stripping Electrical Tap Connector)	**1**
472096	In-Line Fuse, 5 Amp.	**1**
472103	Ignition Module, 2466H-676-223	**1**
472104	Wire #1, Orange, Female	**1**
472105	Wire #2, White, Female x Female x Male	**1**
472106	Wire #3, White, Female x Male x Male	**1**
472107	Wire #4, Orange, Female x Female x Male	**1**

Save These Instructions Together With Your Existing Operation & Installation Manual For Future Reference.

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