TECHNICAL BULLETIN

Date: FALL 2015

Product: H-Series Forced Draft Heaters

Installations on surfaces below pool level

The Universal H-Series are energy efficient, high performance heaters which feature a rust-resistant water path, polymer header assembly and a rapid-heat combustion chamber. They are easy to install and maintain, thanks to their low profile, lightweight and CPVC plumbing capabilities. The heater automatically lights in response to a call for heat, and automatically shuts down when that call for heat is satisfied.

Figure 1 Pressure Switch

Water must be flowing through the heater during operation. Check that the pump is operating and that the system is filled with water and purged of all air prior to starting up the heater.

The heater system has a pressure switch (Figure 1) designed to protect the heater from low or no flow conditions. Never operate the heater without a properly adjusted pressure switch. The pressure switch is pre-set for deck level installation in which the heater is usually above the water level. If the heater is installed below water level, for example if the pool is on a roof and the equipment pad is on the floor below, the pressure switch may require adjustment (Figure 2) to compensate for the no-flow static head. The no-flow static head can cause the pressure switch to activate and that can allow the heater to switch on even if the pump is off and there is a no flow condition. This can result in overheating and structural failure of the heat exchanger and other components of the heater. Please refer the manual for proper pressure switch adjustment.

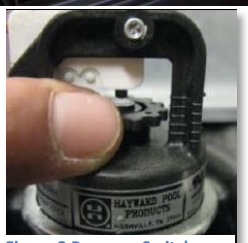


Figure 2 Pressure Switch Adjustent

As an additional safety measure it is recommended to have a unidirectional paddle type flow switch (Figure 3 & 4) – Hayward Part Number: UHXFSW1930 - installed on the heater outlet (Figure 5). The paddle type flow switch will detect and confirm liquid flow through the heater. The flow switch can be interlocked with the main power supply to the heater.

Figure 3 Paddle Type Flow Switch

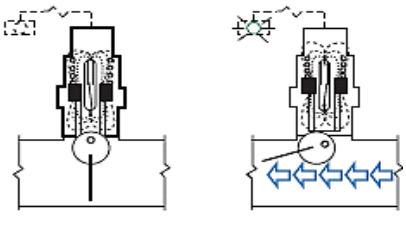


Figure 4 Paddle Type Flow Switch Operation

Figure 5 Flow Switch Installation

(Continued on reverse side)

Installation at high altitude

In the Universal H-Series heater Natural Gas or Propane are mixed with air and combusted to provide the necessary heat for the pool water. It is important to understand the mechanism of combustion to ensure that the heater is working properly. The quantity of heat produced and efficiency of the heater depend on the proper air-fuel ratio. If there is too much fuel the combustion is incomplete and results in formation of carbon monoxide which is dangerous. At higher altitudes the density of air reduces and hence the amount of air in the air-fuel mixture reduces unless steps are taken to maintain the air-fuel ratio. This is done by providing more air flow to the heater or by adjusting the quality of the fuel.

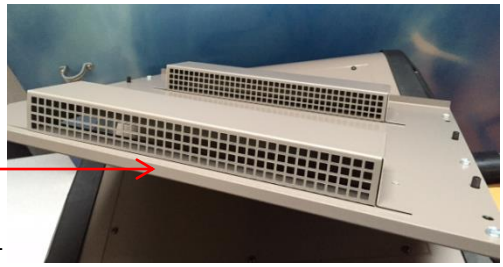
60Hz Heater Installation at high altitude

In 60Hz heaters a high altitude kit is provided with the Universal H-Series Heaters. This kit contains sets of plates that help concentrate the air flow to the blower.

50Hz Heater Installation at high altitude

The Universal H-Series Forced Draft Heaters available in 50Hz however do not have the high altitude kit included with the heater for US regulatory reasons. This limits their applications to a maximum 600m elevation.

A minor modification to the Front Access Panel of the 50Hz heater will allow operation at higher altitude. The solid box vents on the panel can be replaced by box meshes (see pictures below). This allows more air to flow into the heater compartment and the blower has more air to move into the combustion chamber. This additional air compensates for the reduction in air density and maintains the air-fuel ratio required to operate the heater. It is recommended to use a carbon monoxide meter to ensure that the exhaust from the heater and the area around it do not have excessively high levels of carbon monoxide.



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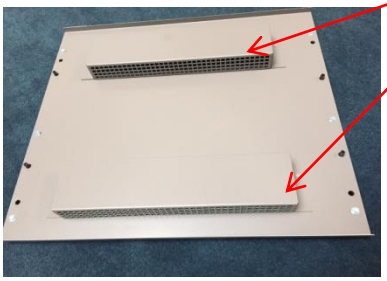

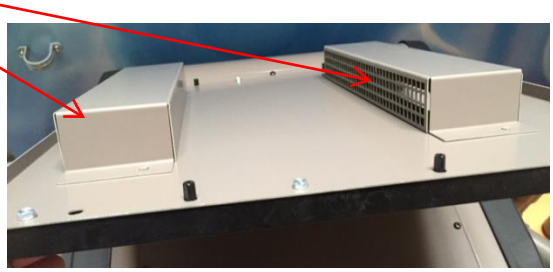

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