Technical Bulletin

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Hot Water stages in the Combination units

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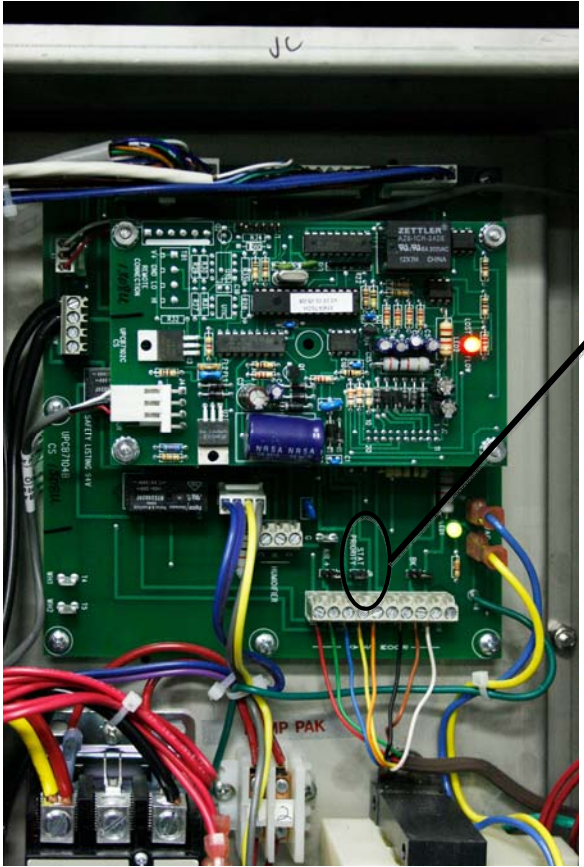Revised: 6 November 2009

Bulletin's Scope:

In the current control board (01CB30) there are multiple settings and wiring configurations, which can change priority and staging of the hot water heating function for combination units.   Many contractors have different applications for the units, so there are many ways to setup these units. All of the possible combinations of hot water heating in the combination units will be explained in more detail throughout this tech bulletin.

Hot Water Operation – Air Priority

In many cases, the combination units will be setup for air priority. The J8 Stat Priority is installed to be setup for air priority (this jumper is installed for air priority at the factory). Hot water heating can only be utilized without "Y" calls from the room thermostat. After the "Y" calls are satisfied, the aquastat is checked for a hot water heating call. Once the water temperature of the buffer tank drops below the set point, minus the differential, the geothermal unit's HW terminal energizes through the aquastat's N.O. contacts. **_The energizing of HW by itself will only run the compressor in first stage (67% of capacity)._**
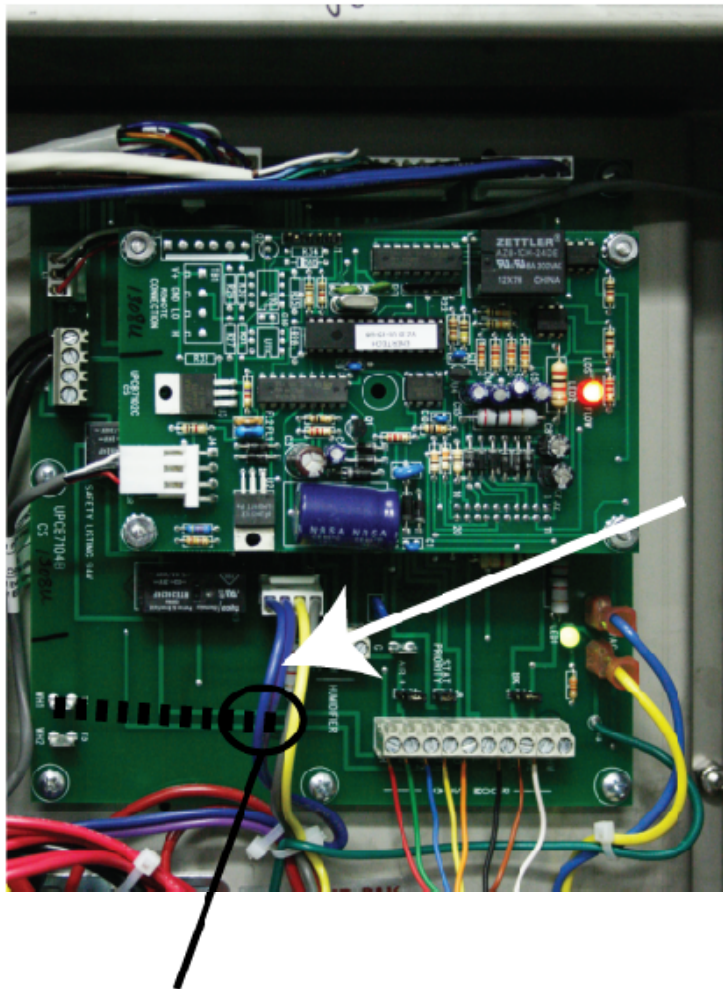

Hot Water Operation – Hot Water Priority

The J8 Stat Priority jumper will have to be removed to setup the unit for hot water priority. Hot water heating will be utilized any time there is a call from the aquastat. HW will be powered by R through the aquastat's N.O. contacts. The energizing of HW by itself will only run the compressor in first stage (67% of capacity). The "Y" calls will only be initiated when the aquastat's set point is reached at the buffer tank.

Full Load Operation – Hot Water Priority

The energizing of HW by itself will only run the compressor in first stage (67% of capacity). The combo unit is designed to allow part or full load in forced air mode, but as noted above, only part load in hot water mode. If the application requires full load operation in hot water mode, a jumper wire may be added to the control box as shown below. ***The WH1 jumper only works when the J8 Stat Priority jumper is removed. This means the board always has to be in Hot Water Priority.***

Cut the second blue wire from the left (may be purple in some models) going to the compressor solenoid valve. Run a wire (dashed line, above) from terminal WH1. Using a wire nut, connect **both cut wires and the new wire from WH1.**

Full Load Operation - Air Priority

The WH1 jumper must be added as shown for the full load operation in hot water priority. Also, the J8 Stat Priority jumper must be removed to remain in the Hot Water Priority at the control board. A relay must be added to the thermostat wiring before the thermostat terminal block. The relay must be a single pole double throw (SPDT) relay. The HW from the aquastat must wire through the Common and N.C. terminals of the relay contacts. The coil of the relay connects to Y1 and C of the thermostat terminal block. This allows a forced air call to drop the HW signal or hot water call.

R	G	Y2	Y1	O	C	W2	HW

SPDT Relay

N.C.

C

N.O.

To Aquastat N.O. Terminal