Bard
SINCE 1914
Climate Control Solutions
Bard Manufacturing Company, Inc.
Bryan, Ohio 43506

PLENUM BOX INSTALLATION INSTRUCTIONS

Models: QPBHW42-F-V, -F-4, -F-X
QPBHW42-D-V, -D-4, -D-X
QPBHW48-F-V, -F-4, -F-X
QPBHW48-D-V, -D-4, -D-X

The Plenum Box is designed for use with the Q-Tec Series units. It is for use in Free Blow or Ducted applications depending on the model specified.

1. Remove the center screw from each top side of the unit.
2. Cut insulation 6.5 inches back and 1.5 inches in. Install grommet in .875 hole in Q-Tec Top. See Figures 1 & 2.
3. Place Plenum Box on top of Q-Tec unit with the open side down and the grille facing the front of the unit.
4. Make sure the bottom offsets of the Plenum Box are inside the top of the Q-Tec unit flange. The outside of the Plenum Box should be flush with the outside of the unit.
5. Reinstall the center screws in the top of the Q-Tec unit. These screws will go through the clearance holes on the Plenum Box and hold it in place.
6. Remove the side access panel and route low voltage valve wires through bushing. Route wires down, then in through back of control panel.

SEQUENCE OF OPERATION – HOT WATER HEAT AS PRIMARY HEAT for HEAT PUMPS

7. Install relay assembly in the Q-Tec HP unit with self-drilling screws provided & connect wires per Figure 3.
8. Locate yellow wire from the 12 pin connector that connects to terminal Y of TB2; disconnect it from terminal Y and reconnect to terminal 4 of the relay.
9. Connect wires to terminals Y, B, W2 and C of TB2 in the Q-Tec unit. See Figure 3.
   When wired, as instructed per steps 7 - 9, the hot water coil will be the first and only stage of heating.

SEQUENCE OF OPERATION – HEAT PUMP PRIMARY AND HOT WATER AS SECOND STAGE

10. This step is only for heat pump as first stage and hot water as second stage. Connect wires from hot water coil to terminals W2 and C on TB1. Relay assembly is not used. See Figure 4.
    When wired per step 10, the heat pump will operate as first stage heat and the hot water as second stage heat.
    To use the heat pump in emergencies (i.e. when the boiler is down), install a switch in the blue wire from relay terminal 3 to TB2 terminal B. When the switch is open, the unit will function as a heat pump without the hot water coil.

SEQUENCE OF OPERATION - HOT WATER HEAT for Q**A (A/C UNITS)

11. Connect wires from hot water coil to terminals B and C of TB2 in the A/C unit. See Figure 4.

AIRFLOW ADJUSTMENT & PIPING CONNECTIONS

12. Adjust louvers to obtain desired air distribution (-F model only).
13. Connect supply and return piping. Supply is on the left (facing the front of the unit). Return is on the right (facing the front of the unit).
    Consult Figure 5 for heating capacity at the CFM and flow rate supplied to the hot water coil.
    All values are at 180° water and 70° indoor conditions.

FIGURE 1
FREE BLOW PLENUM

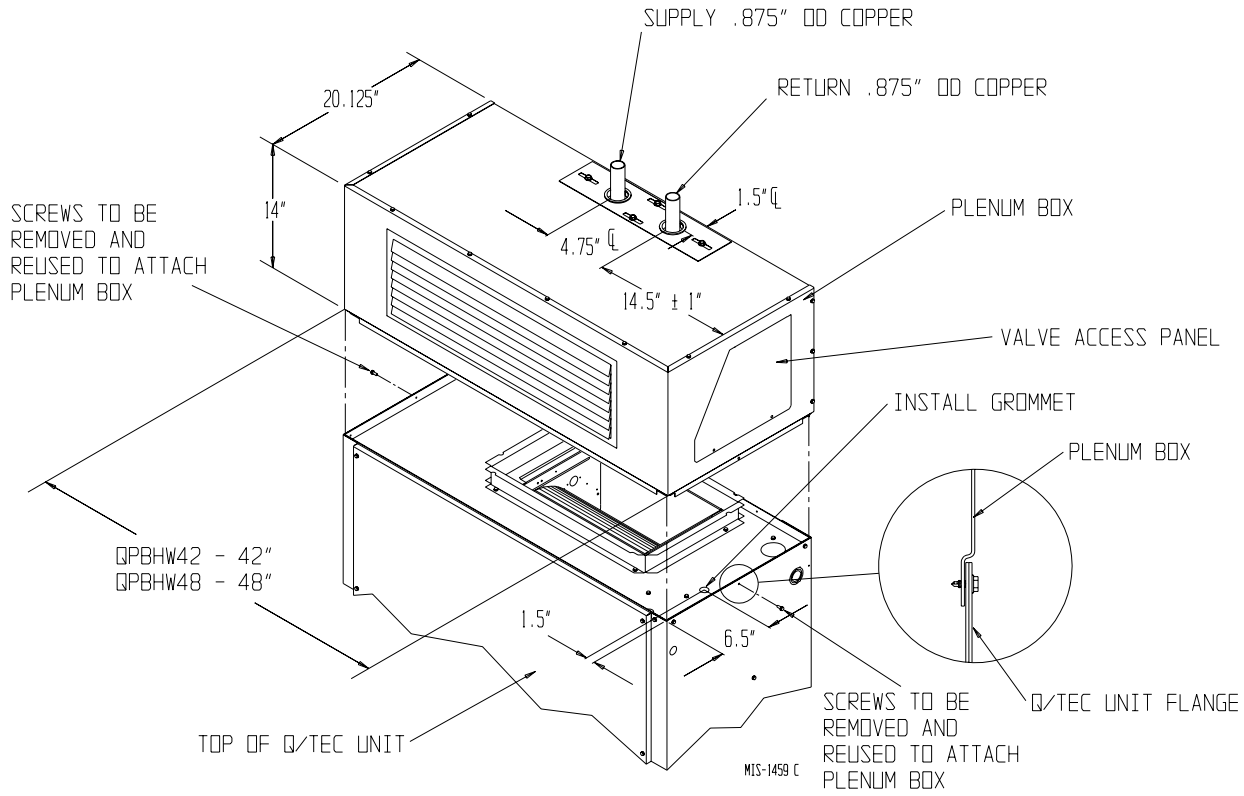


FIGURE 2
DUCTED PLENUM

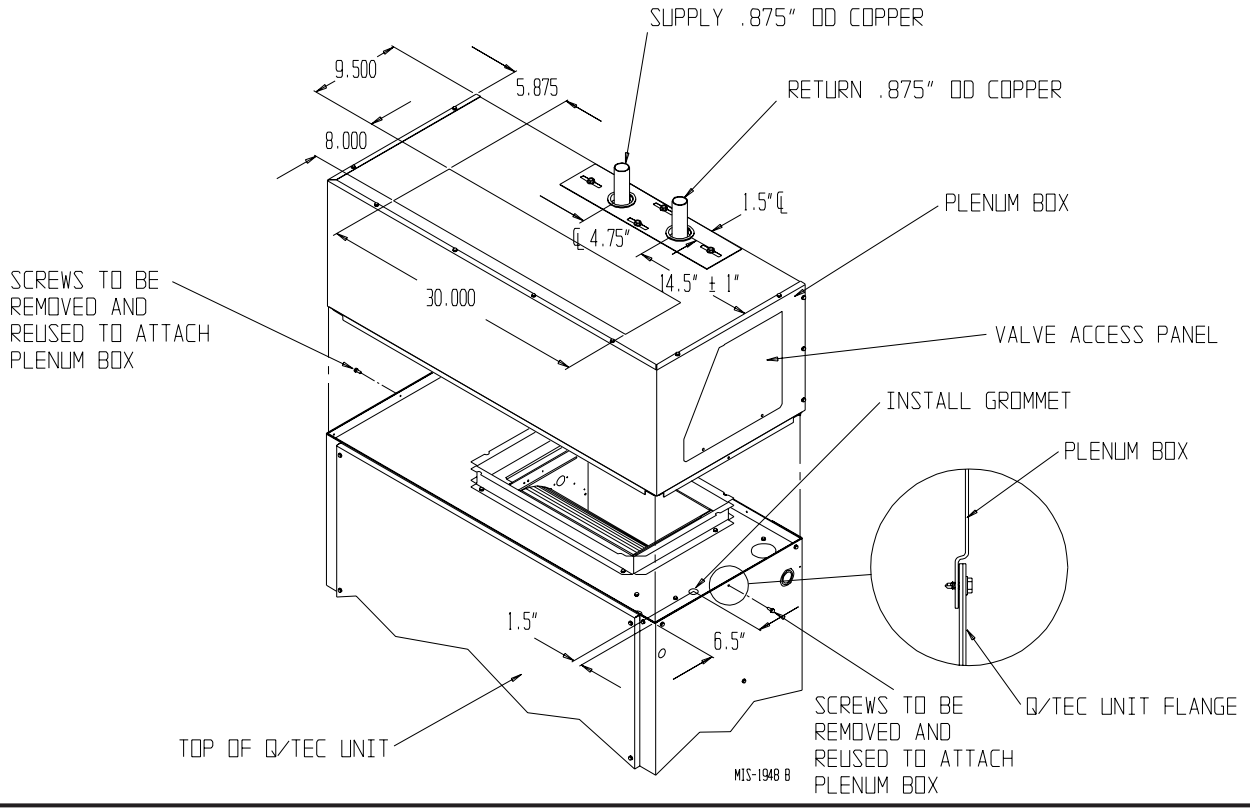
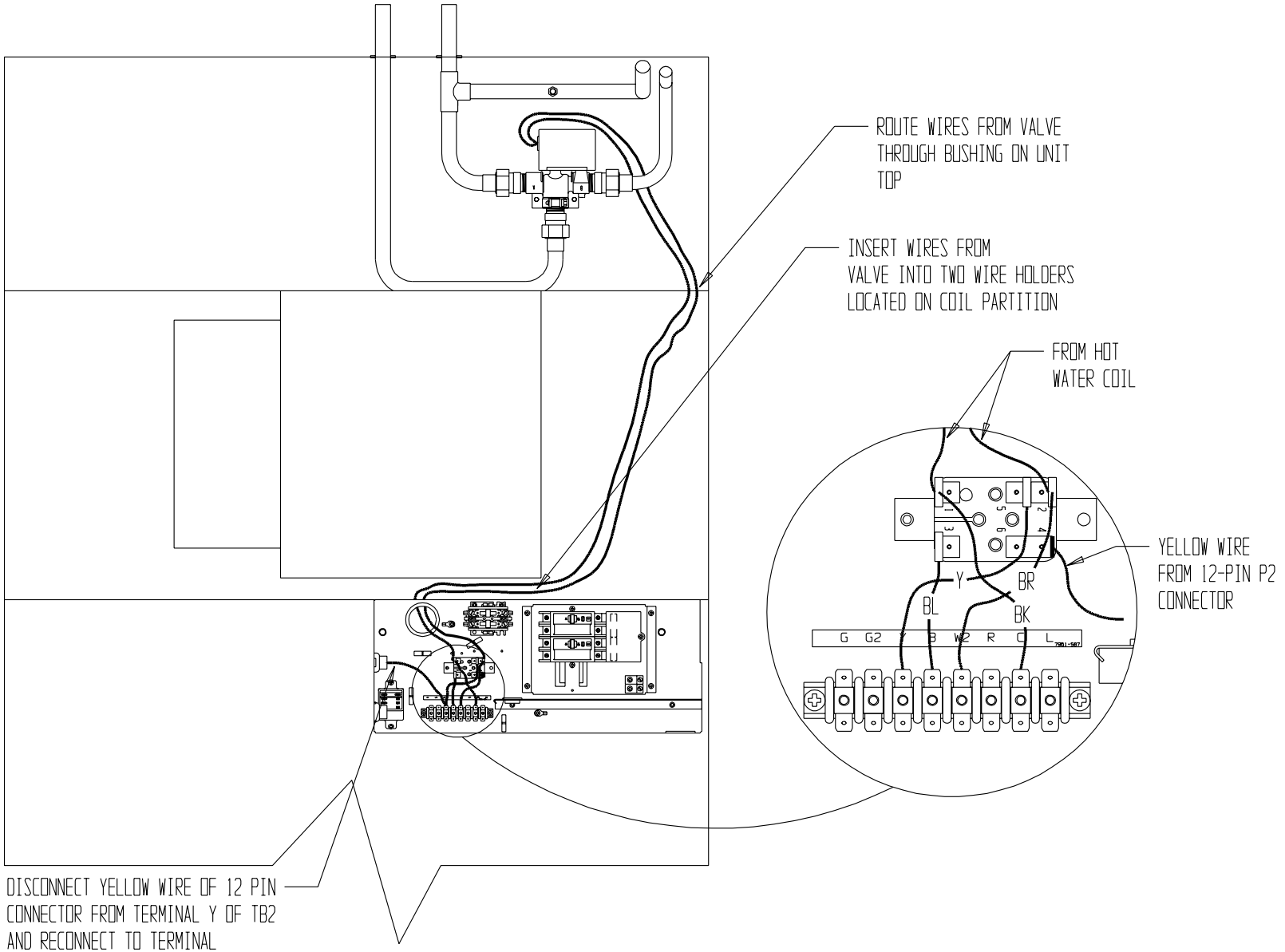
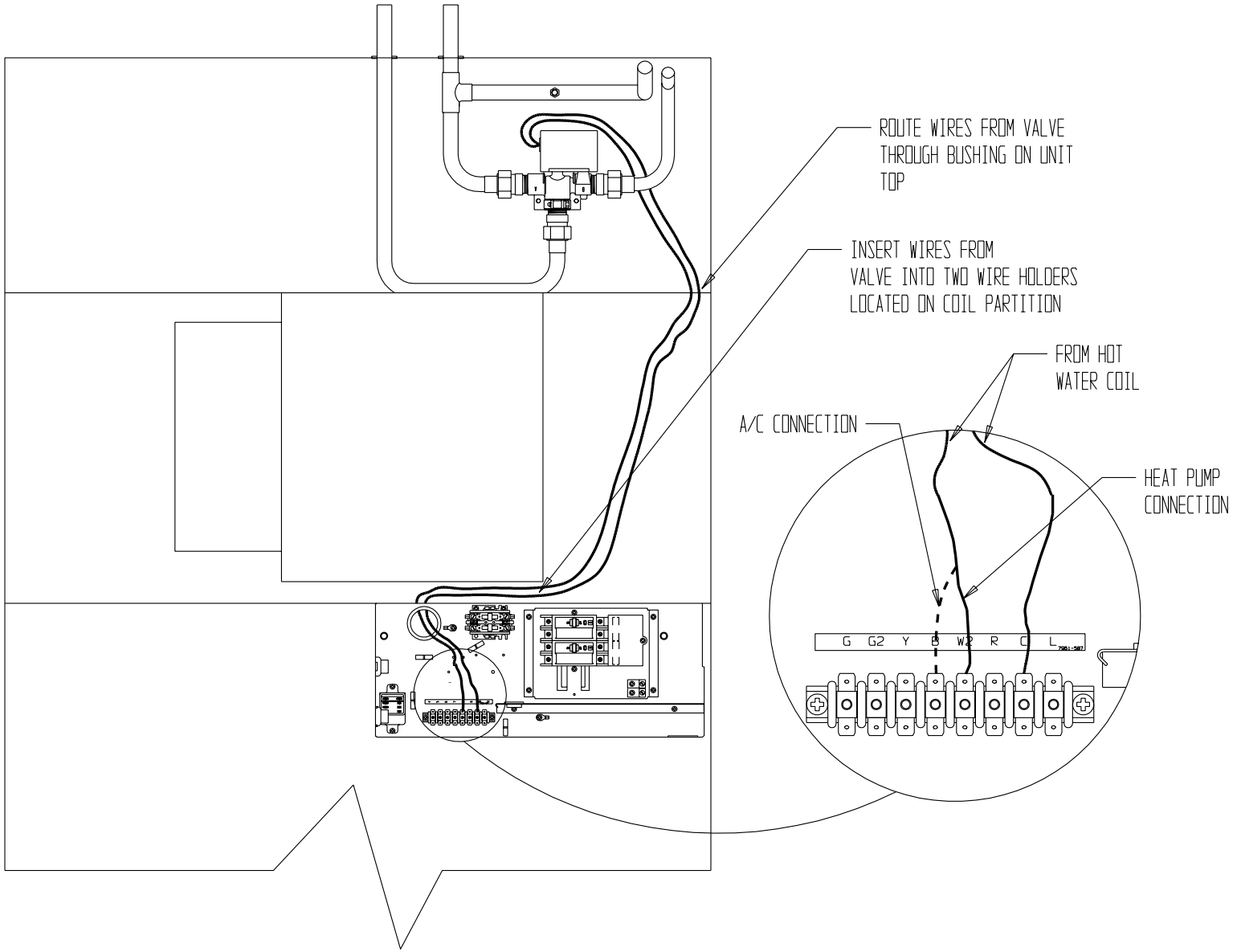


FIGURE 3
HOT WATER COIL AS 1ST STAGE HEAT IN HEAT PUMP UNIT



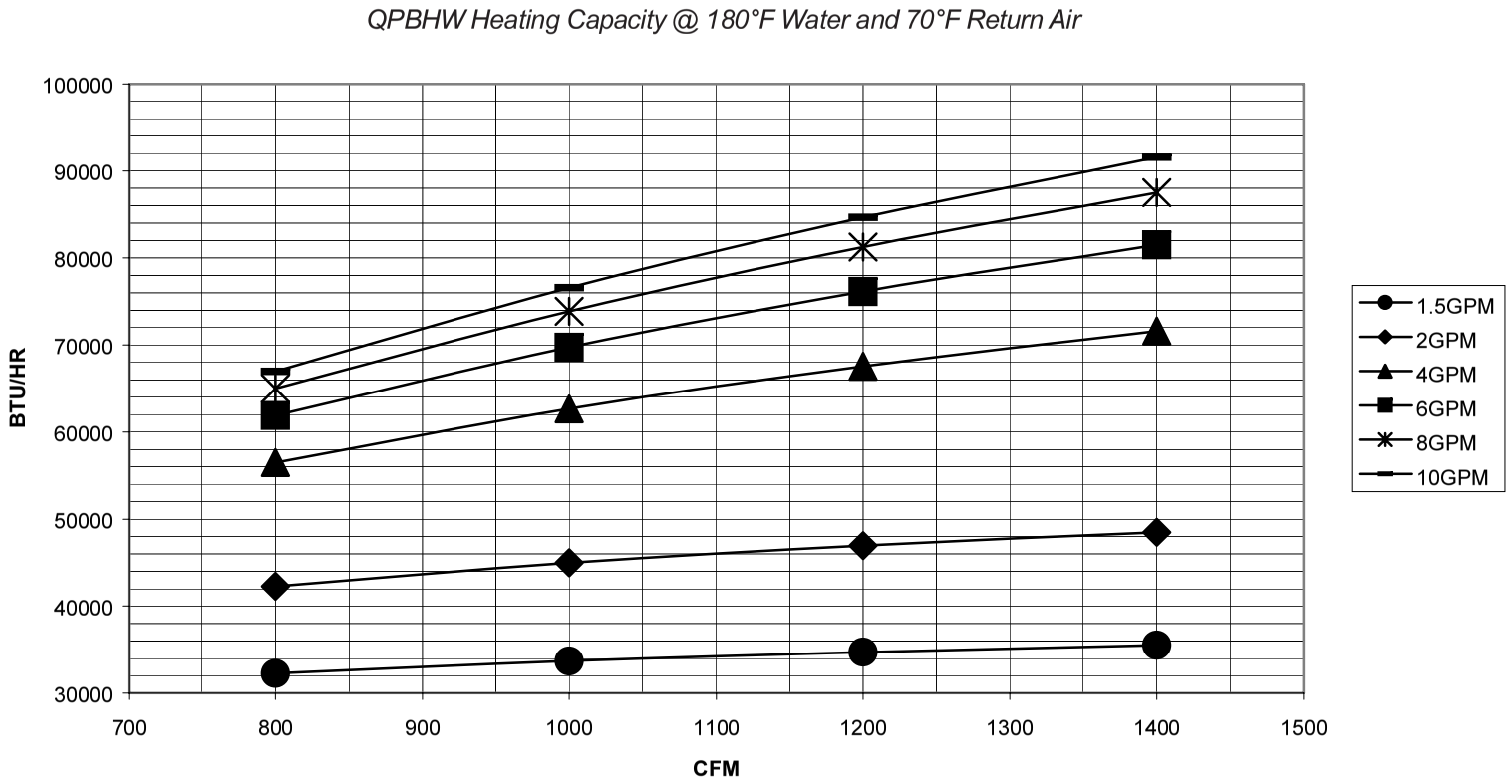
MIS-1458 C

FIGURE 4
WATER COIL WIRING AS 2ND STAGE HEAT (IN HEAT PUMP & A/C UNITS)



MIS-1592 B

FIGURE 5
QPBHW HEATING CAPACITY



NOTES:

j Water connections are 7/8" O.D. copper.
k 3-way flow valve is factory installed.
l Control wiring included, and can be operated as either 1st or 2nd stage.

FIGURE 6
HOT WATER COIL PRESSURE DROP
WITH HOT WATER AT 180°

QPBHW42 & QPBHW48		
GPM	**Water FT Head**	**PSI**
1.5	0.2	0.1
2	0.2	0.1
4	1.4	0.6
6	3.0	1.3
8	5.3	2.3
10	8.3	3.6
12	11.7	5.1