

QV/WQ SERIES

COMPRESSOR REPLACEMENT INSTRUCTIONS

Introduction

This document shows step-by-step instructions that will assist in the removal and replacement of the compressor for QV and WQ Series.

Warnings



Warnings in this document are identified by a warning triangle printed against a gray background. Keywords at the start of the warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **DANGER** indicates a situation that, if not avoided, will result in death or serious injury.
- **WARNING** indicates a situation that, if not avoided, could result in death or serious injury.
- **CAUTION** indicates a situation that, if not avoided, could result in minor to moderate injury.
- **NOTICE** is used to address practices not related to personal injury.

Important Information



This symbol indicates important information where there is no risk to property or people.

SAFETY WARNINGS



DANGER: PERSONAL INJURY HAZARD
Before performing service turn off electrical power to unit and observe the proper process of locking-out power at the main/disconnect box and follow all safety precautions outlined in unit's IOM before performing any repairs to unit.



WARNING: PERSONAL INJURY HAZARD
Installation and servicing of this equipment can be hazardous due to system pressure and electrical components. Only trained and qualified personnel should install, repair, or service the equipment.



WARNING: PERSONAL INJURY HAZARD
When working on equipment, always observe precautions described in the literature, tags, and labels attached to the unit. Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing, and place a fire extinguisher close to the work area.



WARNING: PERSONAL INJURY HAZARD
R410A is flammable when exposed to open flame. Recover all refrigerant prior to brazing.

NOTICE: All refrigerant discharged from this unit must be recovered WITHOUT EXCEPTION. Technicians must follow industry accepted guidelines and all local, state, and federal statutes for the recovery and disposal of refrigerants. If a compressor is removed from this unit, refrigerant circuit oil will remain in the compressor. To avoid leakage of compressor oil, refrigerant lines of the compressor must be sealed after it is removed.

Tools required

- Flat head screwdriver
- Utility knife
- Awl
- 1/2" Socket with long extension
- Pipe cutter for 3/8" - 7/8" copper
- Brazing Equipment

Instructions

- 1) Turn off power and apply "Lock Out Tag Out":
 - a. Remove line voltage connections and ensure there is no power supply to the lines.

- 2) Remove unit front access panel.

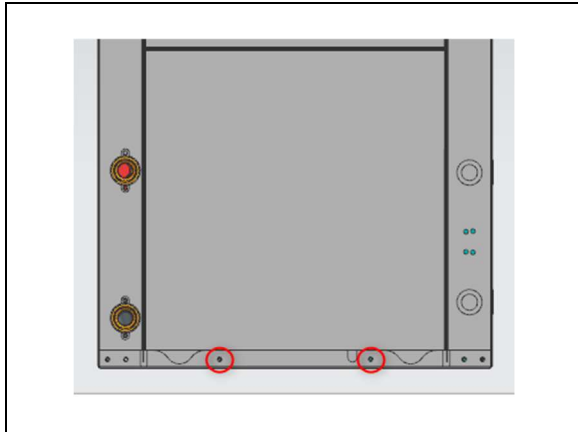


Figure 1. Access panel removal

- 3) Recover all refrigerant from heat pump utilizing standard refrigerant recovery techniques.
- 4) Removing Electrical Box
 - a. Remove screws holding Electrical Box to unit base and to unit corner post. See Figure 2.
 - b. Carefully unplug wire ties and wiring (Compressor, motor, reversing valve, high- and low-pressure switch, freeze and condensate sensors) preventing from freely moving the electrical box.

NOTE: Mark wires to facilitate re-wiring later.

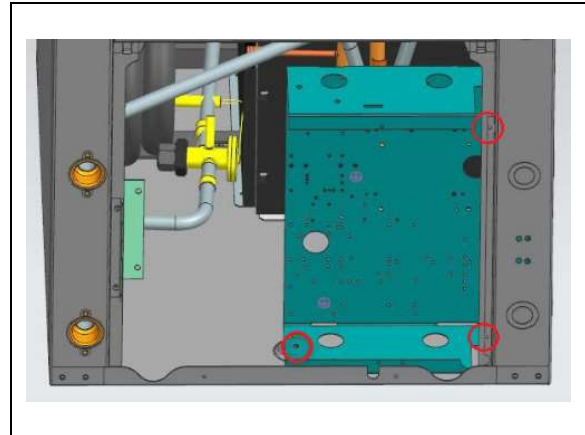


Figure 2. Electrical Box Screws Location

- 5) Follow encapsulation and compressor replacement instructions based on unit configuration:
 - a. For **Vertical** units pages 3 to 5.
 - b. For **Horizontal** units pages 6 to 7.

Vertical Configuration**Encapsulation and compressor replacement instructions**

Compressor Encapsulation parts overview are shown on figures 3 & 4 to use later as reference in the instruction section.

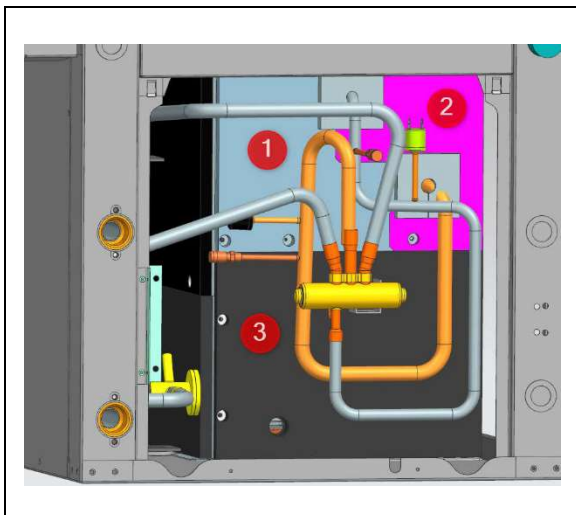


Figure 3. Front encapsulation panels

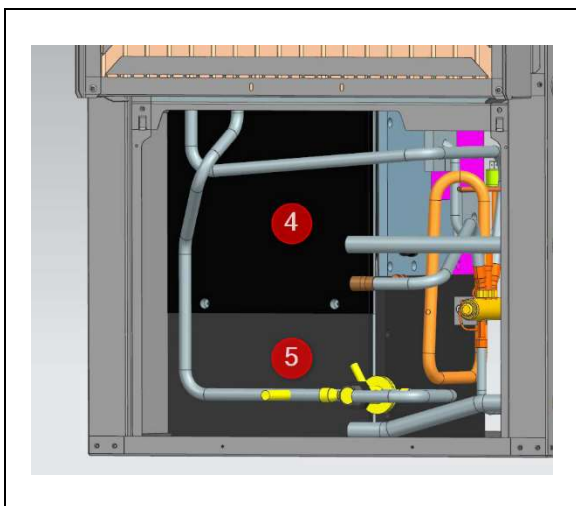


Figure 4. Side encapsulation panels

- 1) Remove compressor encapsulation screws that attach the encapsulation to the divider (Qty 4). See Figure 5

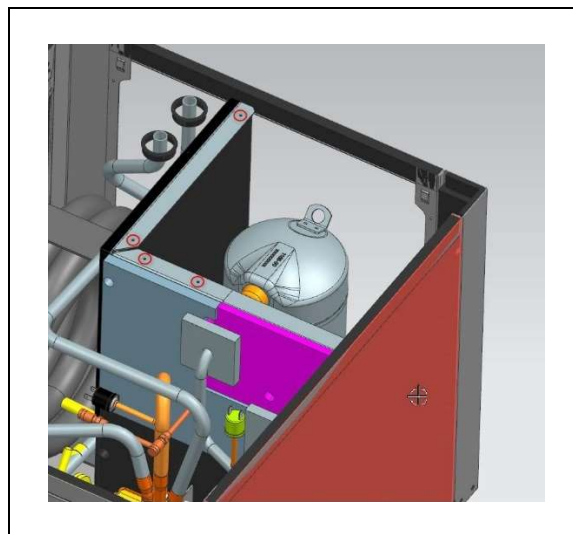


Figure 5. Divider encapsulation screw locations

- 2) Cut pipes shown on figure 6 to remove reversing valve assembly.

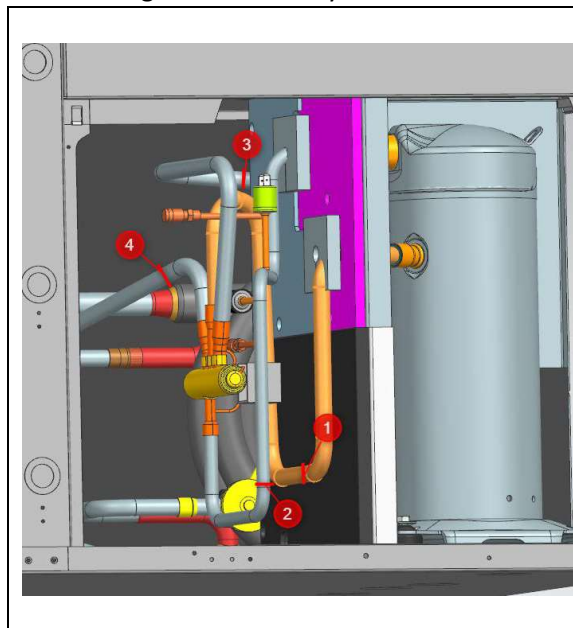


Figure 6. Suggested locations to cut pipes

- 3) Remove Reversing valve assembly.
- 4) Remove (and save to re-install later) insulation pads around suction and discharge pipes. See figure 12.
- 5) Remove screws holding encapsulation panel. See figure 7.

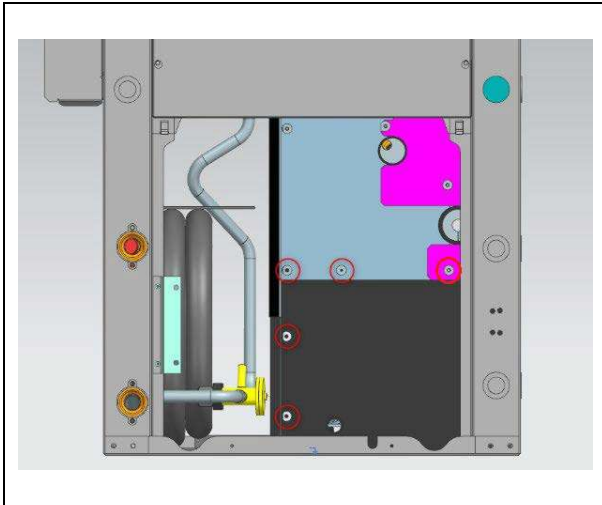


Figure 7. Encapsulation screw locations

- 6) Remove encapsulation panel #3.

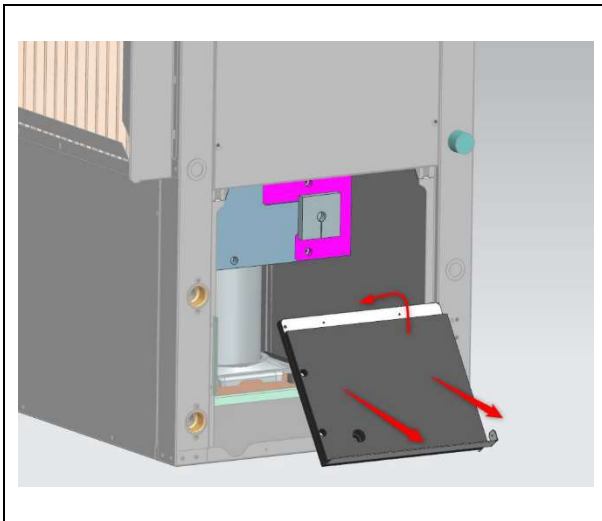


Figure 8. Encapsulation panel #3 removal

- 7) Remove the 1/2" compressor bolts attaching the compressor to the unit and remove the compressor. NOTE: Remove side encapsulation panels #4 and #5 for easier clearance to compressor.

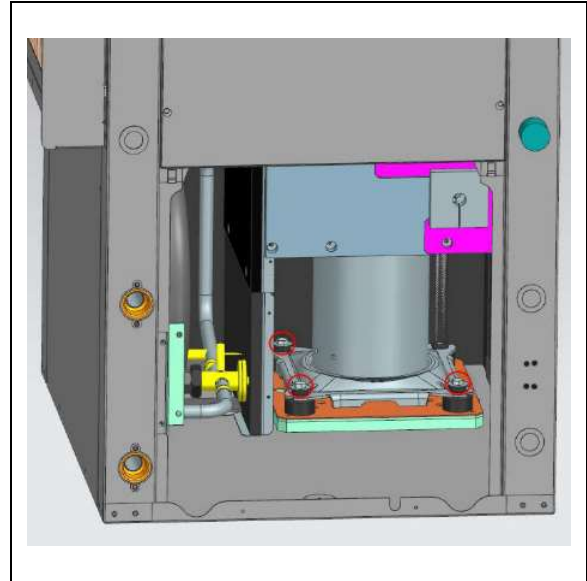


Figure 9. Compressor bolt locations

- 8) Unplug power harness from old compressor and un-braze Suction and discharge from old compressor.
- 9) Braze suction and discharge to the new compressor and re-install compressor power plug. As soon as pipes are brazed, cover to prevent compressor contamination.
- 10) Re-assemble encapsulation panels #1 and #2. See figure 10.

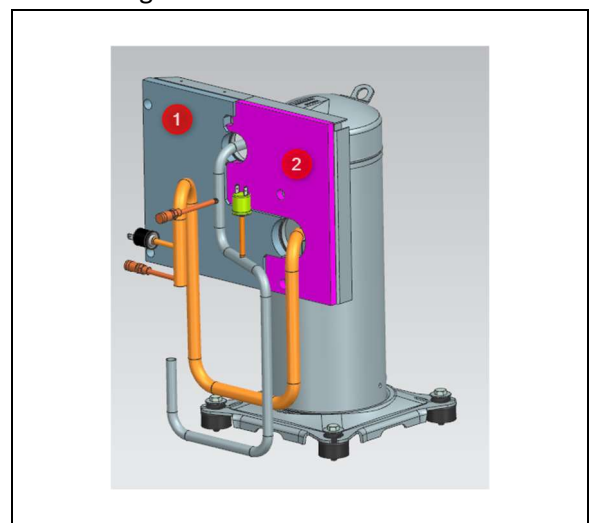


Figure 10. Encapsulation panels #1 and #2 reassembly

11) New compressor installation

- a. Place new compressor in the unit with encapsulation panels #1 and #2 already attached. NOTE: Maintain a clearance of 1/8" between encapsulation and pipes.
- b. Re-install compressor bolts.

12) Encapsulation re-installation

- a. If removed (at step 7), re-install encapsulation panels #4 and #5 and insert screws attaching panels to the divider.
- b. Screw front encapsulations panels #1 to divider.
- c. Route compressor power plug through encapsulation panel #3 electrical wires opening.

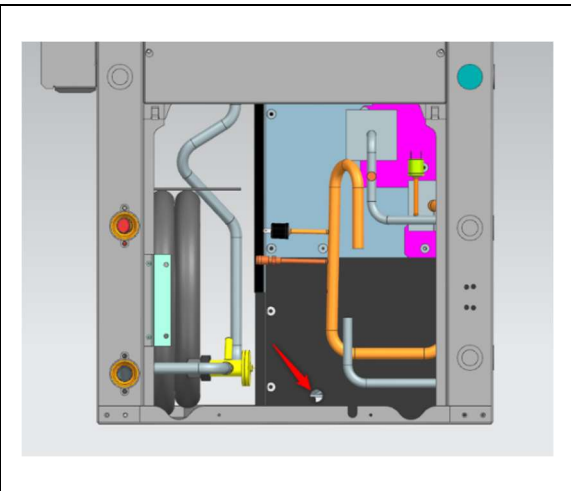


Figure 11. Opening for electrical wires

- d. Re-install front encapsulation panel #3.
- e. Re-install suction and discharge pads. See figure 12

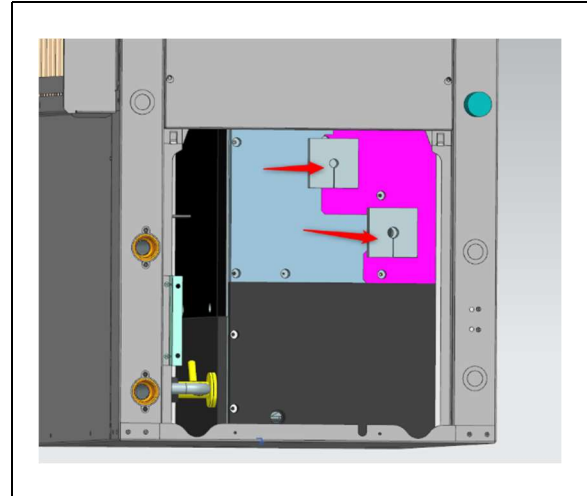


Figure 12. Suction and discharge pads

13) Install a filter drier between TXV and water coil. See Figure 18.

14) Re-braze reversing valve assembly pipes.

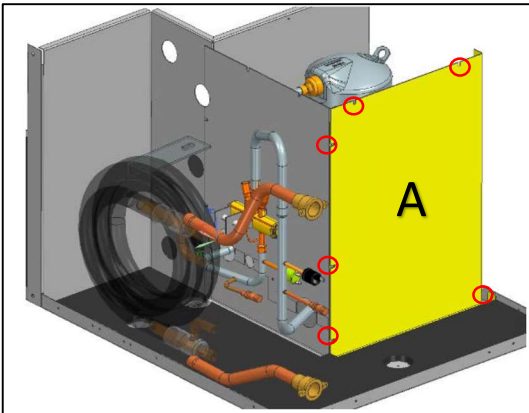


It is imperative that the refrigerant system remain clean and dry during the above operations. A new bi-flow liquid line dryer must be installed

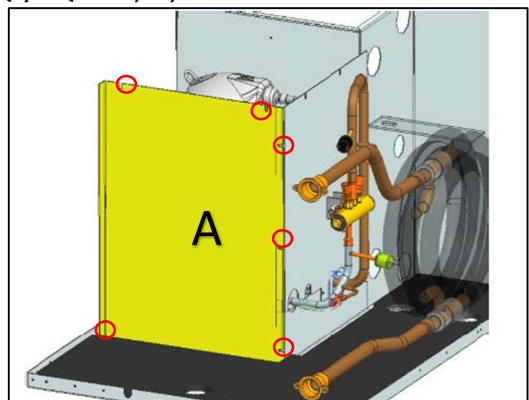
Horizontal Configuration Encapsulation and compressor replacement instructions

- 1) Based on unit configuration refer to figure 13 to locate:
 - a. Encapsulation panels (marked as "A" and "B")
 - b. Screws
 - c. Suction/discharge insulation pads
- 2) Remove screws shown holding encapsulation panels marked as "A" and "B".
- 3) Remove (and save to re-install later) suction/discharge insulation pads, if applicable based on unit configuration.

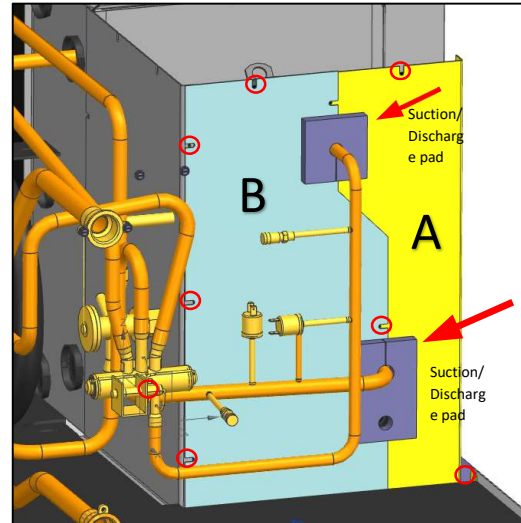
QV/WQ 24-30 HZ Right Hand



QV/WQ 24-30, 36, 42 HZ Left Hand



QV/WQ 36,42 HZ RH



QV/WQ 48, 60 HZ LH, RH

No encapsulation removal required to access compressor. Removing main unit access panel allow for access to compressor.

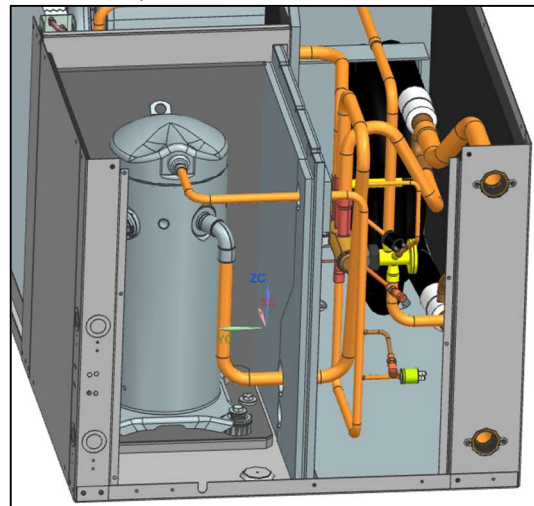
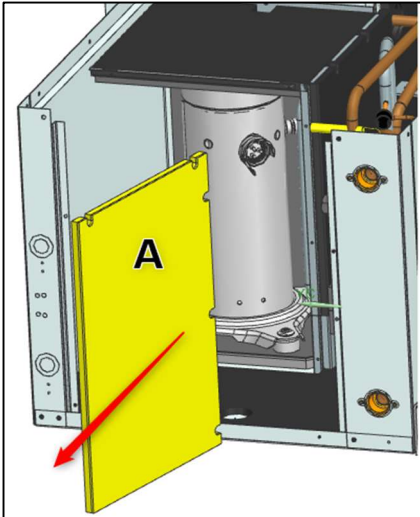


Figure 13. Location for encapsulation panels (marked A, B), screws and compressor suction/discharge pads to be removed per unit configurations.

4) Remove encapsulation panels.

One panel for QV/WQ 24-30 HZ Right Hand, and 24-30, 36, 42 HZ Left Hand



Two panels (A & B) for QV/WQ 36,42 HZ RH

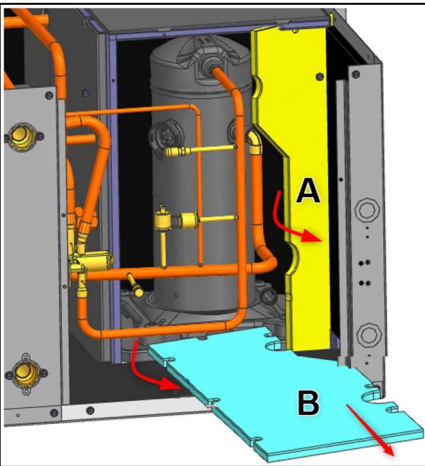


Figure 14. Encapsulation panel removal

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When using any torch, care should be taken to prevent burning any component in unit. Use wet rag to cover unit insulation to protect from flames.

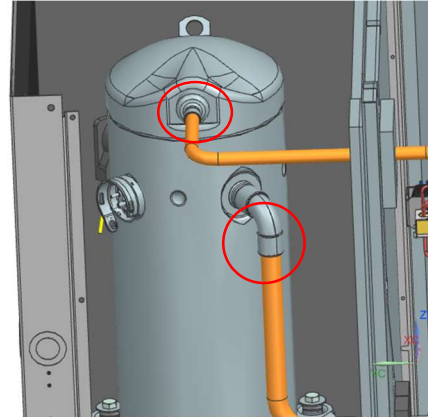


Figure 15. Compressor suction and discharge ports.

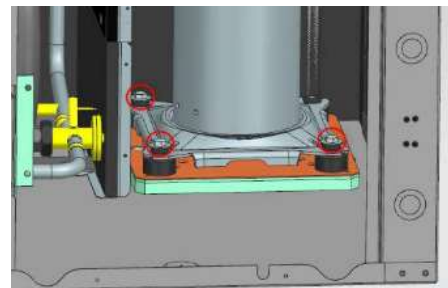


Figure 16. Compressor bolt locations

5) Compressor removal:

- Unplug power harness from compressor
- Un-braze Suction and discharge pipes from compressor ports. See figure 15.
- Remove the 1/2" compressor bolts attaching the compressor to the unit.
- Remove compressor from unit.

6) New compressor installation

- Place new compressor in the unit.
- Re-braze suction and discharge pipes.
- Re-install compressor power plug
- Re-install compressor bolts.

7) Encapsulation re-installation

- a. Re-assemble encapsulation panels removed on steps 1-4 maintaining a clearance of 1/8" between encapsulation and pipes. For QV/WQ 36,42 HZ RH when attaching panels "A" and "B" route compressor power plug through encapsulation electrical wires opening (see figure 17) between the two panels.
- b. Re-install suction/discharge pads removed on step 3, if applicable based on unit configuration.

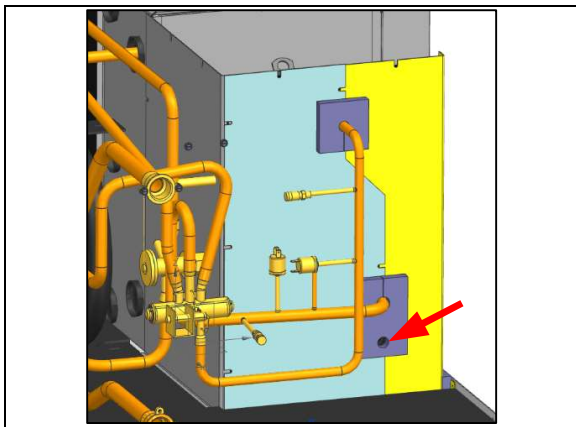


Figure 17. Opening for electrical wires QV/WQ 36,42 HZ RH configuration only.

- 8) Install a filter drier between TXV and water coil. See Figure 18.

Unit re-wiring and recharge

- 1) Re-install and re-wire Electrical Box. Refer to main unit wiring instructions.
- 2) Evacuate the unit and recharge according to unit nameplate.

If you have any questions regarding the information provided in this document, please contact the Bosch Technical Support Department by phone at 1-800-283-3787, or via email at boiler.techsupport@us.bosch.co

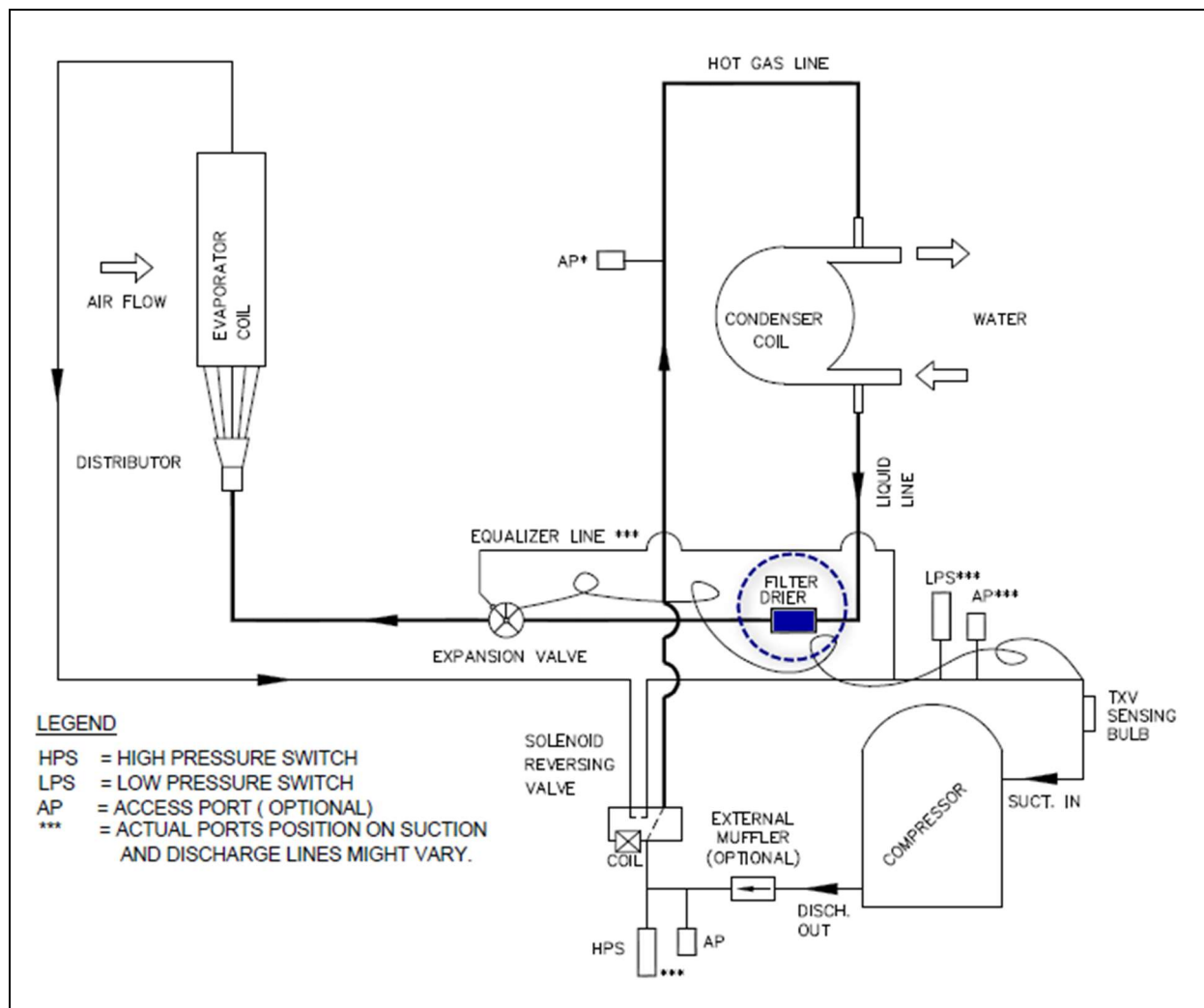


Figure 18. Piping Schematic. Filter drier and overall components location.