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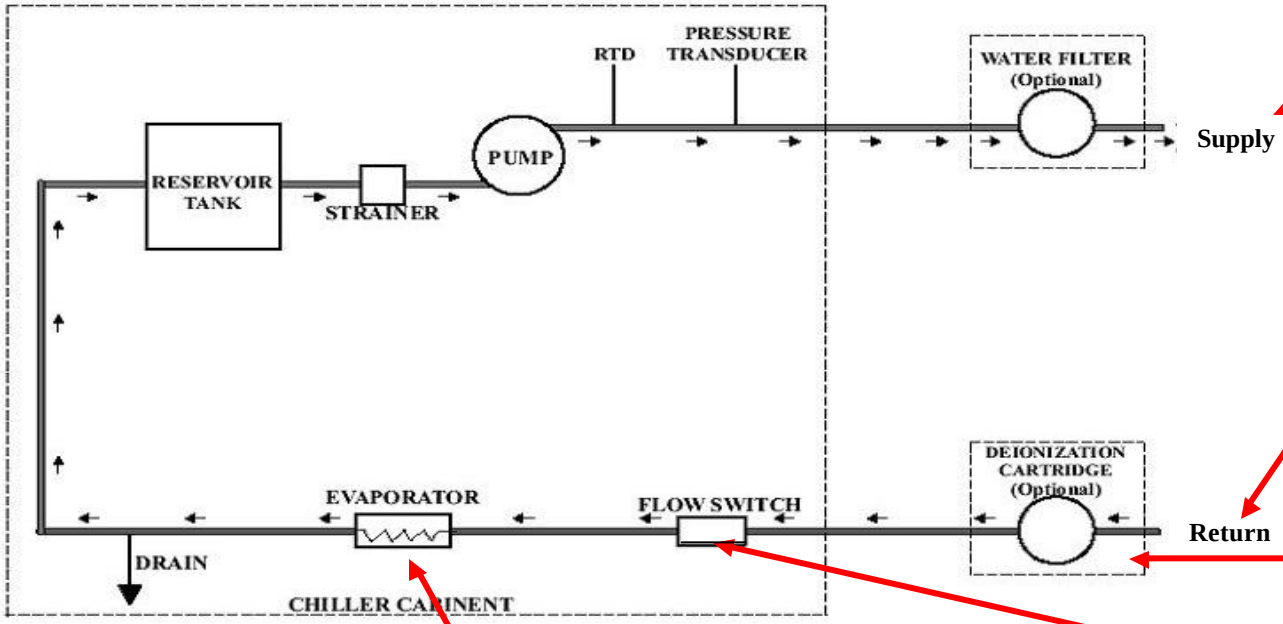
Part IV: Flow Side Components Flow Diagram



The **supply** is the outlet of the chiller. This is where cooled coolant exits.

The **return** is the inlet of the chiller. This is where the warm liquid enters.

The **D.I. Cartridge** is an option it aids in maintaining the high purity of D.I water.

The **evaporator** is a heat exchanger. The coolant flows on one side, and cold refrigerant from the refrigeration system flows on the other side. Since the refrigerant is colder than the coolant, heat flows from the coolant to the refrigerant, and the coolant becomes colder. Please note that it is recommended to use ethylene glycol to prevent freezing when chiller's set point is under 10°C/50°F.

The **flow switch** is designed to prevent low flow through the evaporator or liquid heat exchanger. Very low or no flow can freeze the coolant inside the evaporator and destroy it. The switch is found just after the inlet to the chiller.

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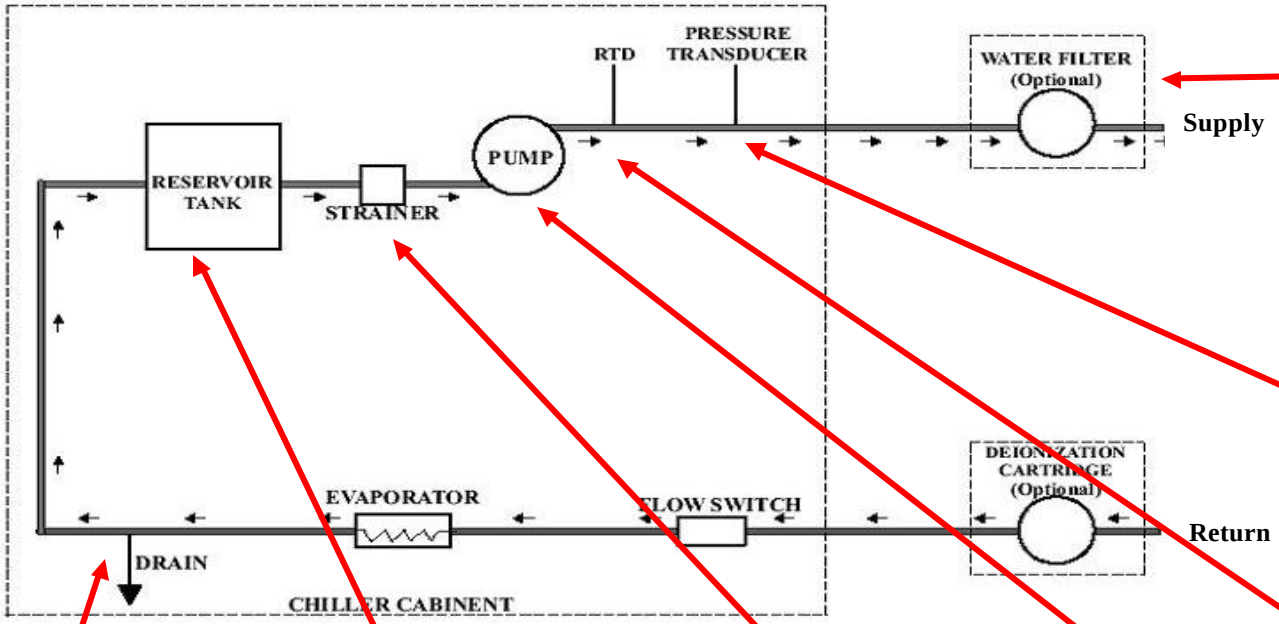

The optional **liquid filter** (which is highly recommended) is attached outside of the chiller and connected to the supply port. It filters particles bigger than 5 microns.

The **pressure transducer** sends the liquid pressure measurement to the control board.

The **RTD** sends temperature measurements to the control board.

The **drain** allows you to empty your system of all coolant. It is located on the outlet of the evaporator.

The **reservoir tank** helps regulate the system's liquid temperature. More liquid in the tank will result in a better temperature stability.

The **strainer** can either be internal or external to the pump. It protects the pump against particulate. It is only present in systems with positive displacement pumps.

The **pump** provides coolant circulation.

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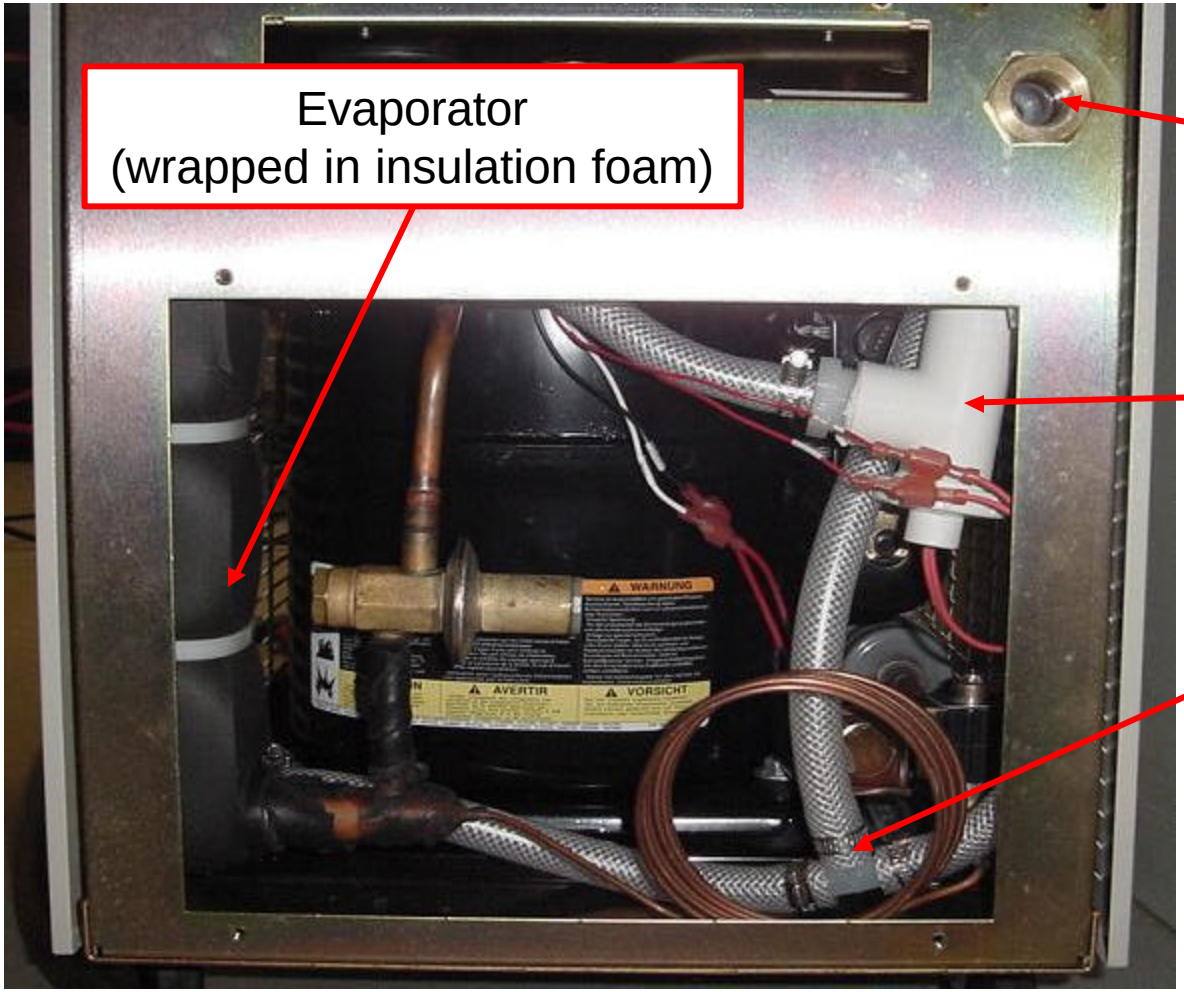
Part IV: Flow Side Components
Bottom Rear View of an RC006



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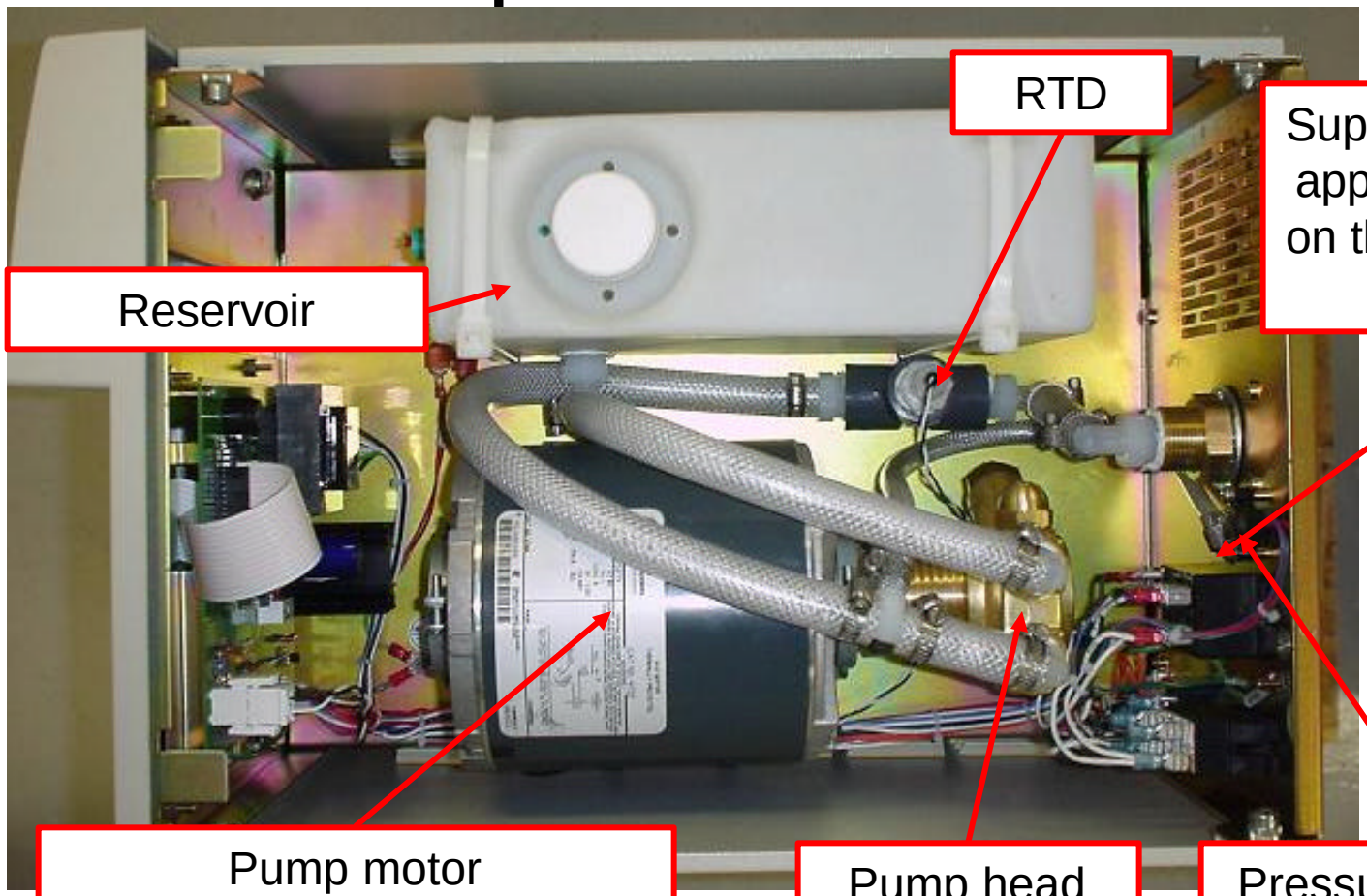
Part IV: Flow Side Components Top View of a RC006



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Part V: Refrigeration System

- Please note that only a certified refrigeration technician should service the refrigeration side of a Kodiak chiller.
- We highly recommend returning the chillers to Lytron for any refrigeration servicing.
- Alternatively, you can contact the Lytron service department to coordinate onsite service by a Lytron approved refrigeration service technician.

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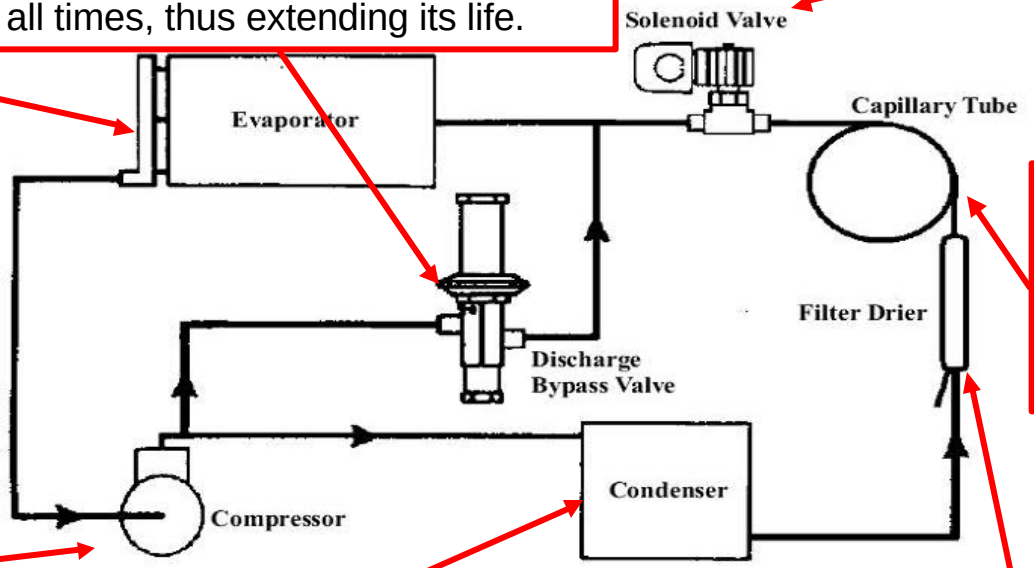
Part V: Refrigeration System Refrigeration Diagram

The **evaporator** is a cross-flow heat exchanger with channels that pass refrigerant and coolant through thin plates. The two flows do not mix, but the close contact allows heat to transfer. Refrigerant enters the evaporator as a gas-liquid mixture, and exits as a low pressure gas.

The **hot gas bypass** valve opens on low pressure, when the solenoid shuts flow off. This allows hot refrigerant gas to flow from the compressor to the evaporator. Bypassing refrigerant when not cooling maintains the compressor on at all times, thus extending its life.

The **solenoid valve** is controlled by the chiller's the control board. It shuts off the refrigerant flow when no cooling is required. Alternatively, it turns the refrigerant flow back on to allow for more cooling to occur.



The **capillary tube** reduces the refrigerant pressure

The **compressor** takes refrigerant coming from the evaporator and converts it to high pressure, high temperature gas. Because of the hot gas bypass, the compressor does not cycle, extending its life significantly.

The **condenser** is a heat exchanger. Heat from the refrigerant is transferred either to ambient air or to water (for water-cooled condensers). The refrigerant condenses from a gas into liquid.

The **filter drier** cleans and removes moisture from the refrigerant before passing through the capillary tube.

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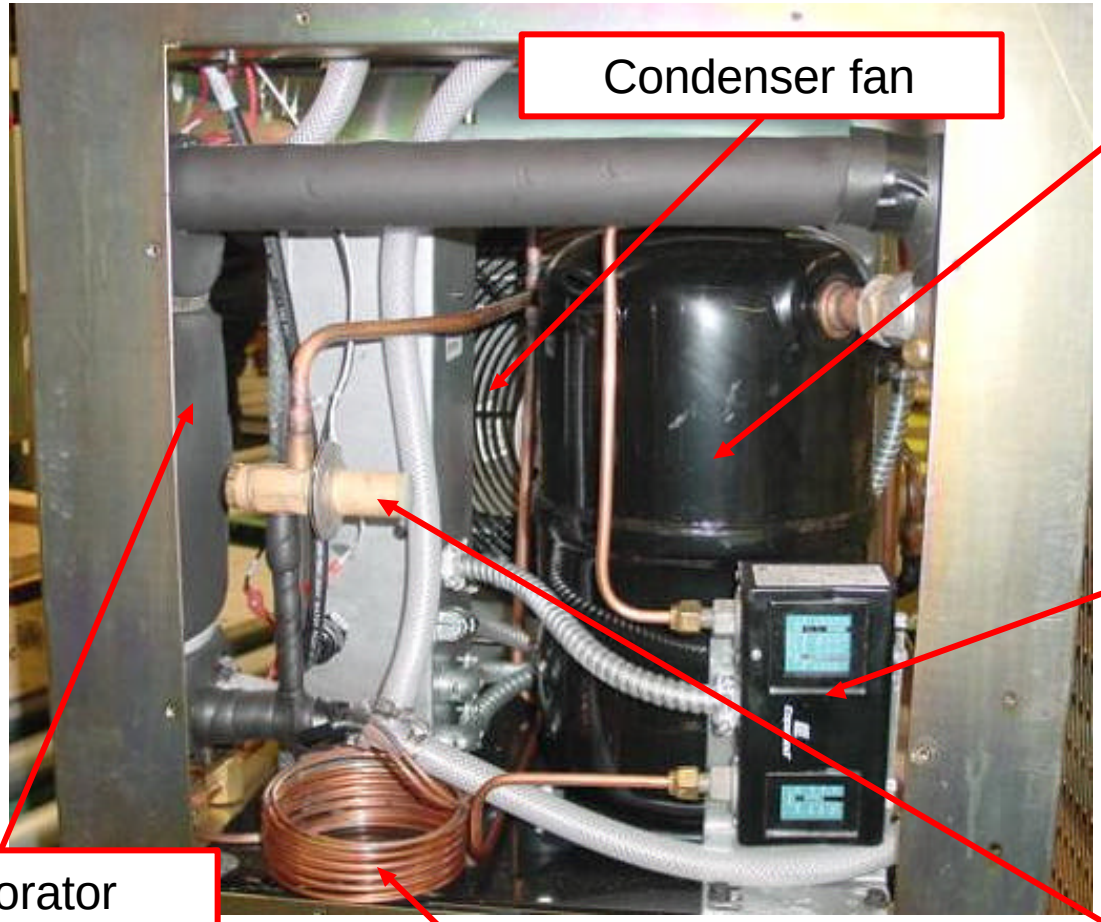
Part V: Refrigeration System Bottom Rear View of a RC045



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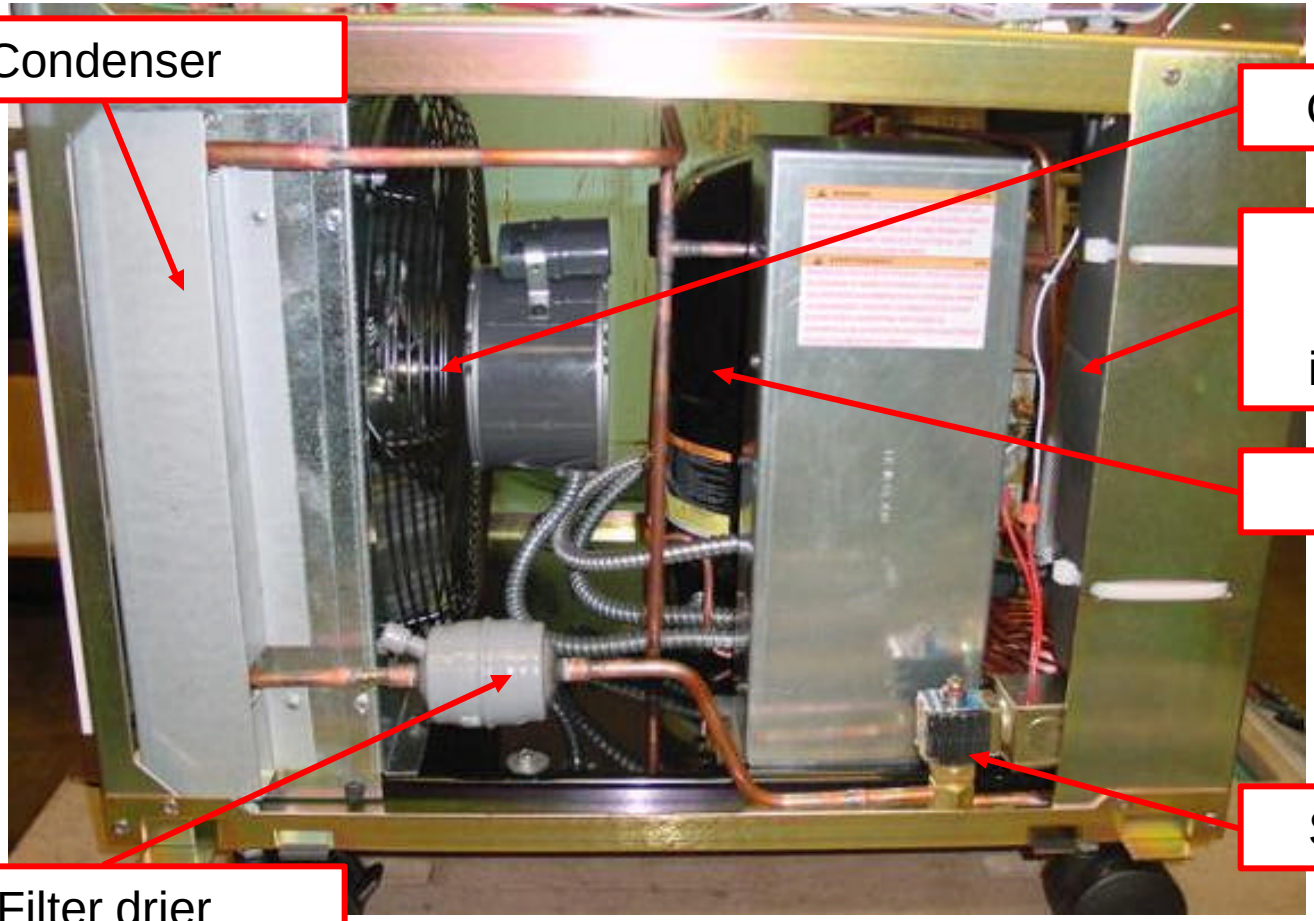
Part V: Refrigeration System Bottom Side view of a RC045



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Part V: Refrigeration System
Side View of a Liquid Cooled Unit