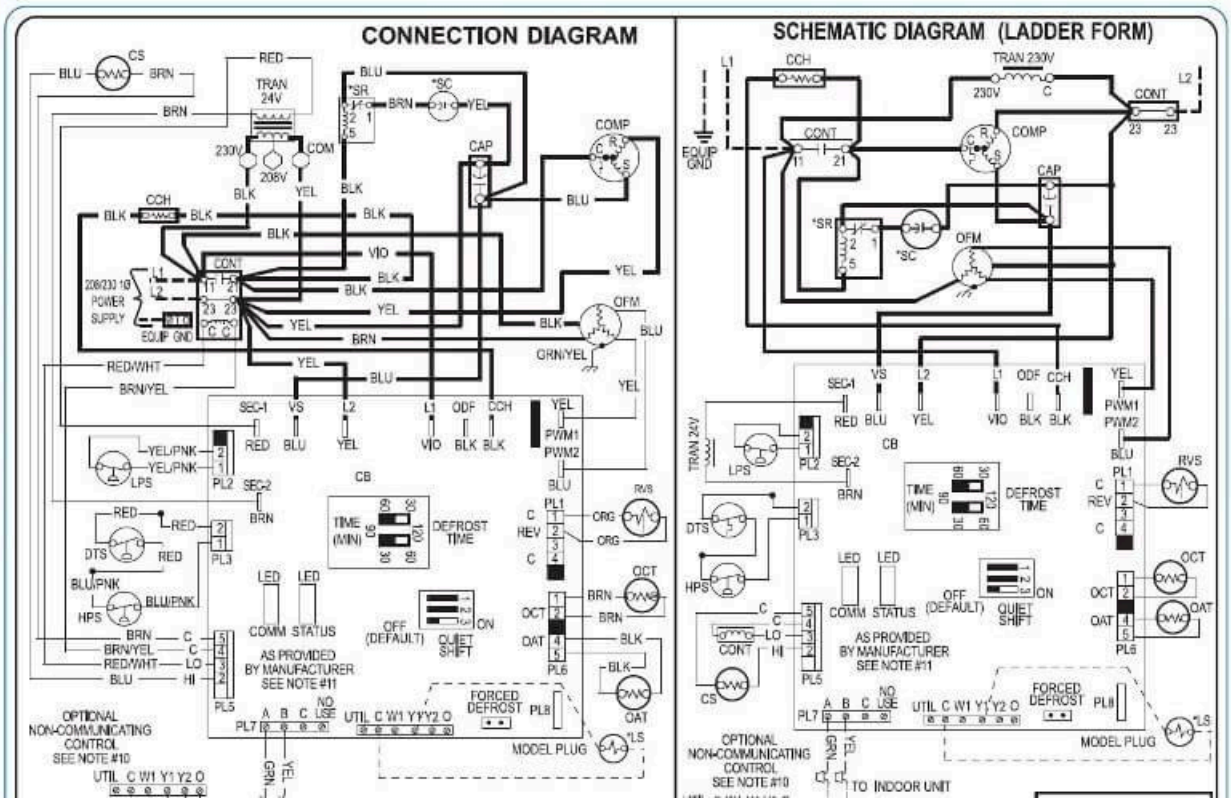

This image shows the electrical wiring for a **Heat Pump outdoor unit**. It includes two types of diagrams: a **Connection Diagram** (pictorial) on the left, which shows where the physical wires go, and a **Schematic Diagram** (ladder form) on the right, which is used to understand the logic and flow of electricity.

1. Key Components & Abbreviations

To read the diagram, you need to identify the main parts (the "loads" that do the work and the "switches" that control them):

Abbreviation	Component	Function
COMP	Compressor	The "heart" of the system that pumps refrigerant.
OFM	Outdoor Fan Motor	The fan that blows air over the outdoor coils.

CB	Control Board	The "brain" (Defrost Board) that manages timing and safety.
CONT	Contactor	A heavy-duty relay that sends high voltage (230V) to the compressor.
CAP	Dual Capacitor	Helps the Compressor and Outdoor Fan start and run.
TRAN	Transformer	Steps down high voltage to 24V for the control system.
CCH	Crankcase Heater	Keeps the compressor oil warm during the off-cycle.
RVS	Reversing Valve	Swaps the unit between Heating and Cooling modes.

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2. How the System Works (The "Ladder" Logic)

Looking at the **Schematic Diagram** on the right, you can trace how power moves through the system:

- **High Voltage (Top Section):** Power enters at **L1** and **L2** (usually 230V). It sits at the **CONT** (Contactor) contacts. When those contacts close, power flows to the **COMP** (Compressor) and **OFM** (Fan).
- **Low Voltage (Bottom Section):** The **CB** (Control Board) receives signals from your indoor thermostat (terminals like **Y** for cooling/heating and **O** for the reversing valve).
- **The Defrost Cycle:** Notice the **"DEFROST TIME"** pins on the board ($30, 60, 90, 120$ minutes). These determine how often the board checks if the outdoor unit is frozen. If it is, the board "shifts" the unit into cooling mode to melt the ice while temporarily turning off the outdoor fan (**OFM**).

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3. Safety Switches

The diagram shows several safety sensors connected to the Control Board:

- **HPS (High Pressure Switch):** Shuts the system down if refrigerant pressure gets

dangerously high.
- **LPS (Low Pressure Switch):** Protects the compressor if refrigerant is lost.
- **DTS (Defrost Thermostat Sensor):** Tells the board the temperature of the coils so it knows when to stop defrosting.

4. Wire Color Guide

While you should always follow the labels, this diagram uses standard industry colors:

- **Red (R):** 24V Power.
- **Yellow (Y):** Compressor call.
- **Blue (C/VS):** Common/Neutral side of the 24V circuit.
- **Black/Red:** Usually indicates High Voltage (230V) lines.

Would you like me to explain how to troubleshoot a specific issue, such as the fan not spinning or the compressor failing to start?

HVAC Wiring Diagrams Explained
This video provides a step-by-step breakdown of how to read both ladder and connection diagrams, which will help you visualize the flow of power in the schematic you provided.