

## OMEGA Legacy Units

This document describes the OMEGA Legacy Heat Pump Chassis units typically utilized as retrofit replacements for the HTS Signature “ELECTROMECHANICAL” (as manufactured by Enerzone).

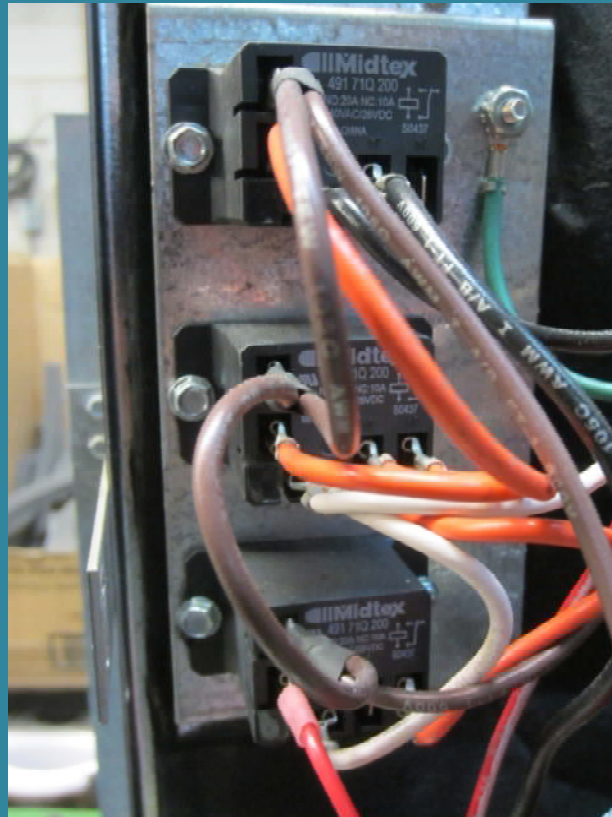


### Identification of the HTS Signature “ELECTROMECHANICAL” HP Chassis

The HTS Signature Series “ELECTROMECHANICAL” HP chassis can be readily identified by the following features:

- a) The discrete electromechanical components as depicted in **Figure 1** making up its control circuitry. The circuit diagram is shown in **Figure 2** and located internally in the chassis.
- b) The unique Molex connector as identified in **Figure 3**. This connector plugs into the fan cabinet of the Signature Series

It is important to confirm that the unit being replaced is compliant a) and b) to utilize the Omega Legacy Unit as a replacement.



**Figure 1 – HTS Signature HP “ELECTROMECHANICAL” Circuit**

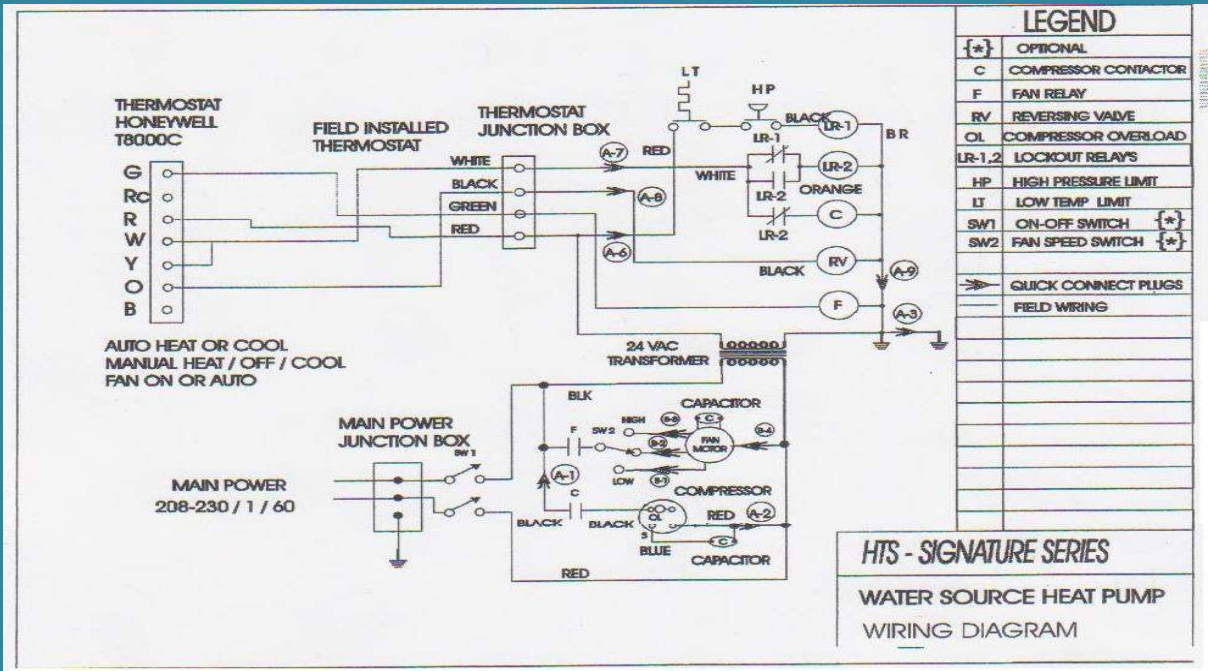


Figure 2 – HTS Signature HP “ELECTROMECHANICAL” Circuit

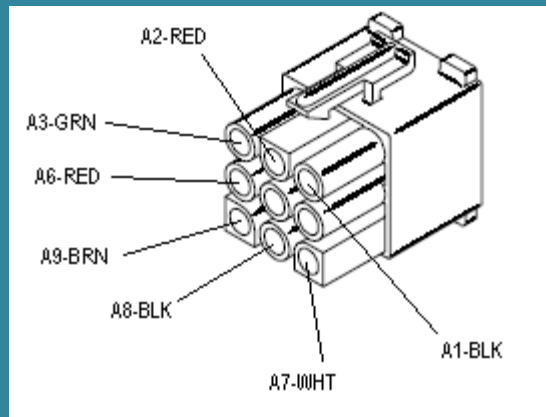


Figure 3 – HTS Signature Series HP Connector

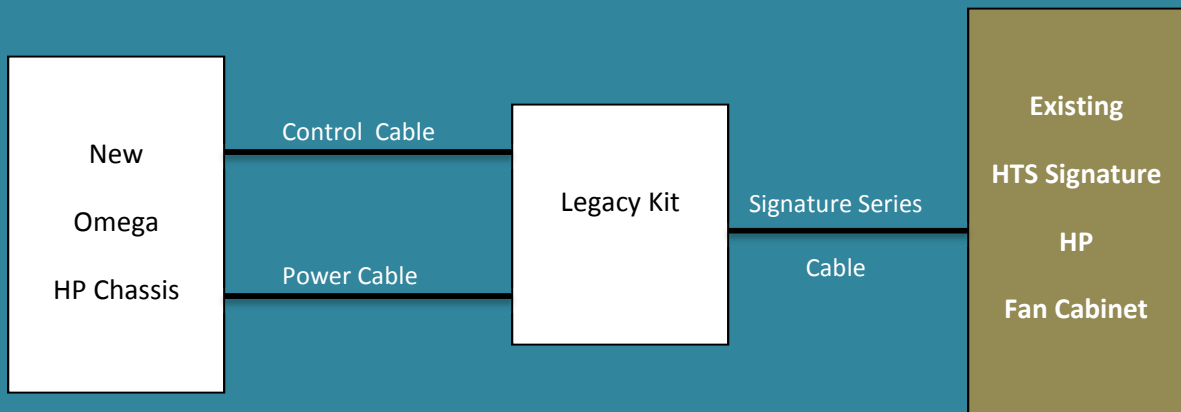
 **OMEGA Legacy Unit Descriptions**

The Omega Legacy Units are composed of:

- a) A standard Omega HP Chassis and
- b) A Legacy Conversion Kit.

Together, these 2 components form a retrofit unit for the HTS Signature Series “ELECTROMECHANICAL” HP Chassis. **Figure 4** illustrates how the units are typically interconnected.

The following sections describe the various versions of the Legacy Kits that have been released over the years.



**Figure 4 – Typical Legacy Kit Connections**

**V1 Version 1 - Legacy Kit V1 (NO LOW PRESSURE BYPASS TIMER)**

Version 1 of the Legacy Kit utilizes an electromechanical printed circuit board as shown in Figure 5a and 5b to interface to the Omega standard chassis. The kit also houses the start capacitor which is usually located in the HTS Signature series HP.

The V1 Legacy Kit duplicates the electromechanical circuit in the original HTS Signature unit (Figure 2). The sequence of operation is as follows:

On a call for the compressor by the thermostat (A6 connected to A7), the compressor contactor (C) will make if LP and HP safeties are clear. If the LP or HP safeties are tripped, the compressor contactor will be permanently locked out by relay LR-2. The circuit must be cycles off-to-on to reset.

On a call for the reversing valve by the thermostat (A8 connected to A7), the reversing valve (RV) will be energized.

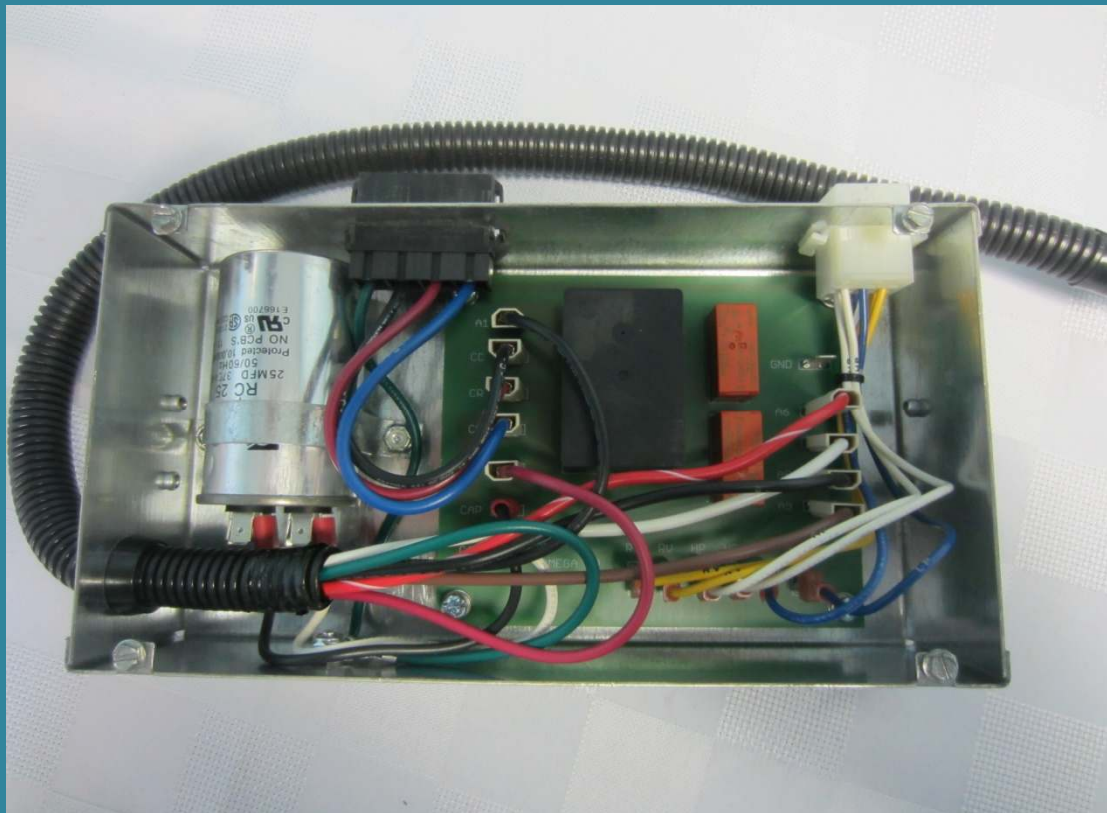


Figure 5a – Legacy Kit V1

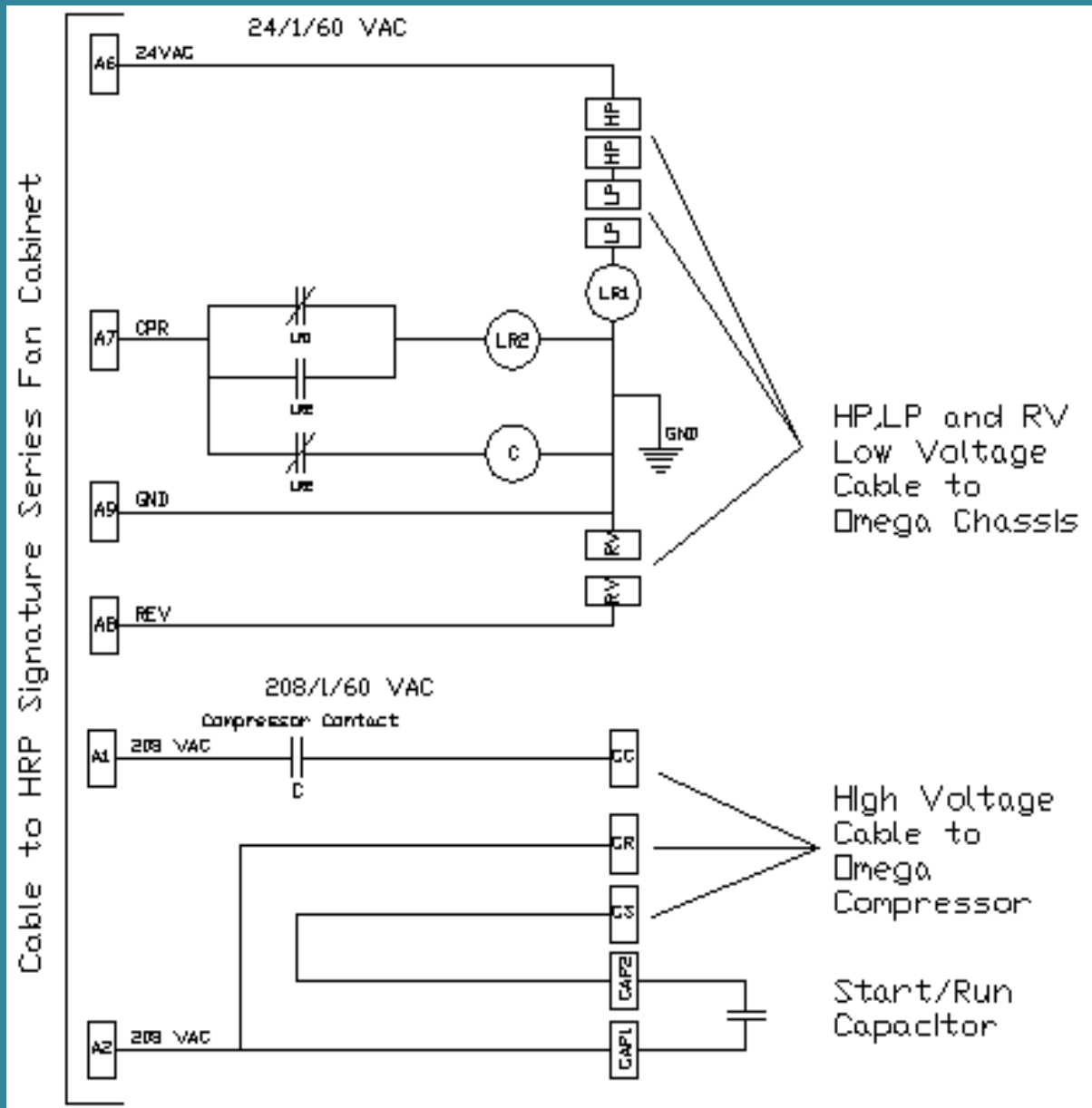


Figure 5b – Legacy Kit V1 Circuit

**V2****Version 2 - Legacy Kit V2 (with LOW PRESSURE BYPASS TIMER)**

Version 2 of the Legacy Kit utilizes the same basic electromechanical printed circuit board as Version 1, with the addition of LP bypass Timer (See Figure 6a and 6b). This bypass reduces nuisance trips during low temperature startups.

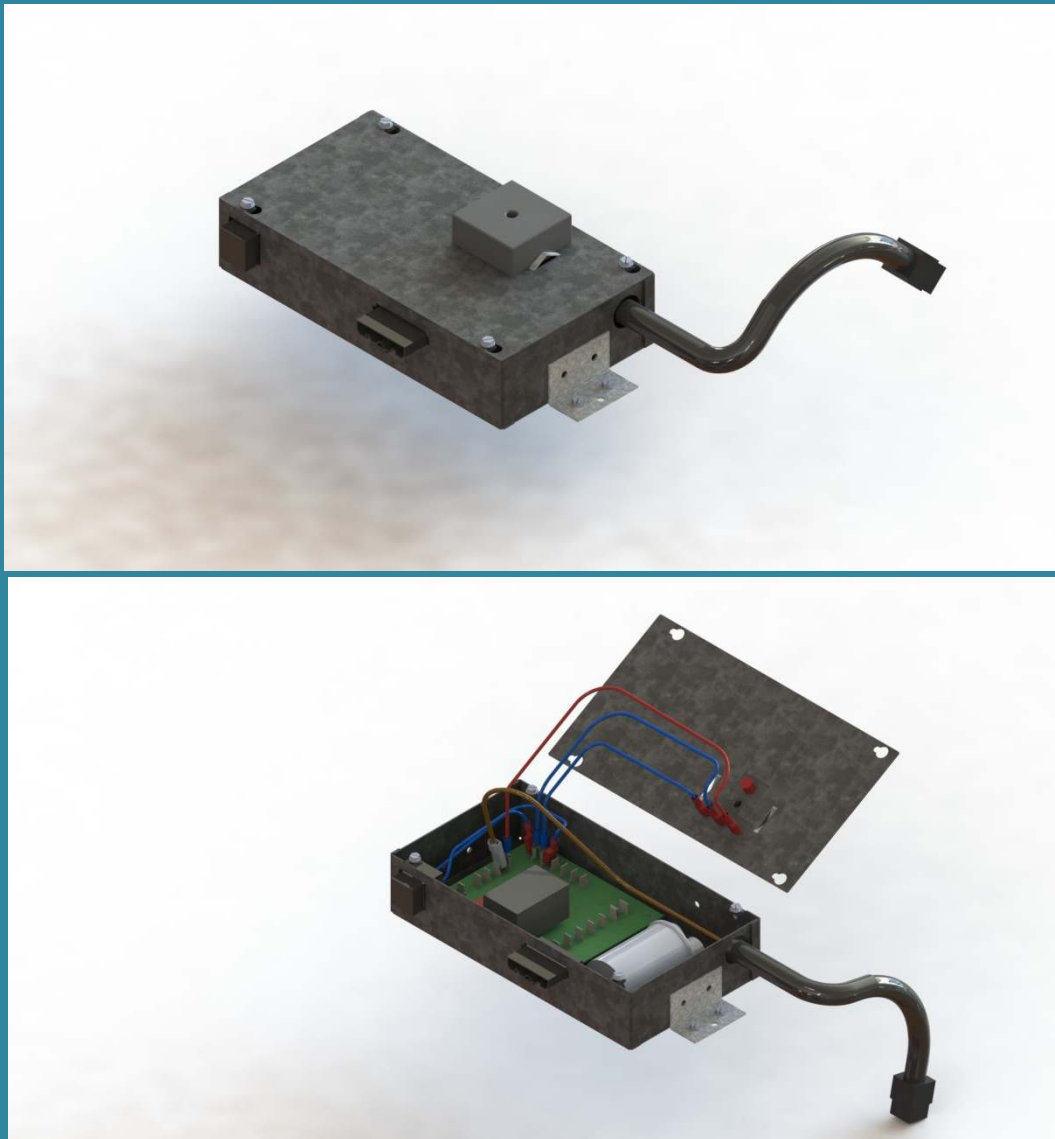
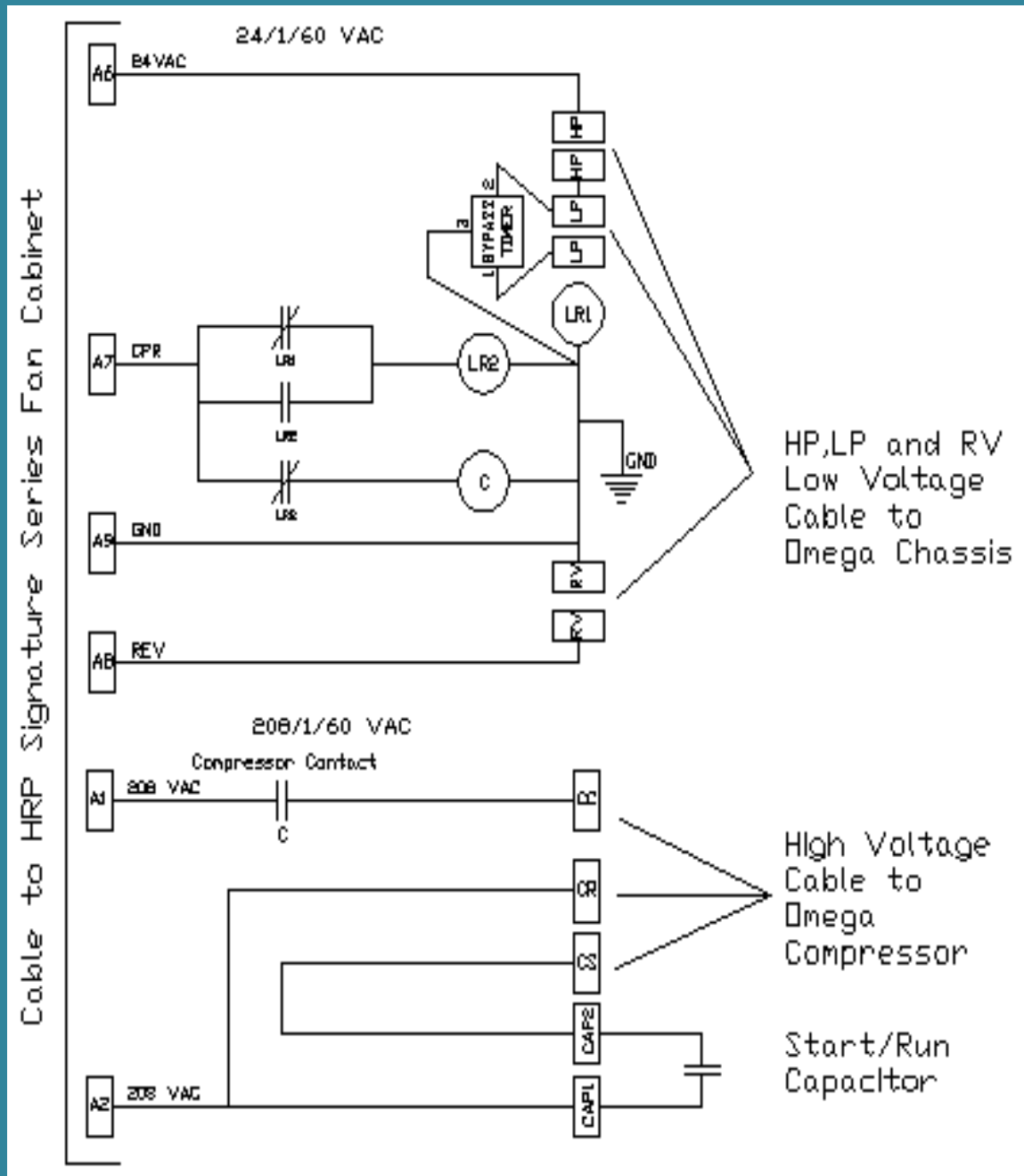


Figure 6a – Legacy Kit V2



**Figure 6b – Legacy Kit V2 Circuit Diagram**

**V4 Version 4 - Legacy Kit V4 (Direct Digital Version)**

Version 4 of the Legacy Kit utilizes a microchip digital controller as shown in Figure 7a and 7b to interface to the Omega standard chassis. The microchip expands the capability of the kit including features such as:

- 3 minute LP Bypass Timer
- 10 minute Compressor Anti Recycle Timer
- On Board LEDs for
  - o Processor Status (GREEN)
  - o Compressor Contactor (YELLOW)
  - o Hi Pressure (RED)
  - o Low Pressure (BLUE)
- Remote LED Display (connected by 5 conductor phone cable).

The V4 kit also houses the start capacitor usually located in the HTS Signature series HP.

**Sequence of Operation**

The V4 Legacy Kit sequence of operation is as follows:

*Processor Status:*

The GREEN LED will flash every ½ second if the processor status is OK.

*Compressor Contactor:*

The YELLOW LED will illuminate SOLID when the compressor contactor is enabled.

*Hi Pressure Switch/Safety:*

The RED LED will FLASH RAPIDLY if the HP Switch trips (opens).

*Low Pressure Switch:*

The BLUE LED will illuminate SOLID if the LP Switch trips (opens) while there is a call for compressor.

*Low Pressure Safety:*

The BLUE LED will FLASH RAPIDLY if the LP Switch is open 3 minutes continuously (LP BYPASS TIMER) while there is a call for compressor.

On a call for the compressor by the thermostat (A6 connected to A7), the compressor contactor (C) will make if LP and HP safeties are clear and the Compressor Anti Recycle Timer has not timed out.

If the LP safety or HP safeties are tripped, the compressor contactor will be permanently locked out. The circuit must be cycles off-to-on to reset.

On a call for the reversing valve by the thermostat (A8 connected to A7), the reversing valve (RV) will be energized.



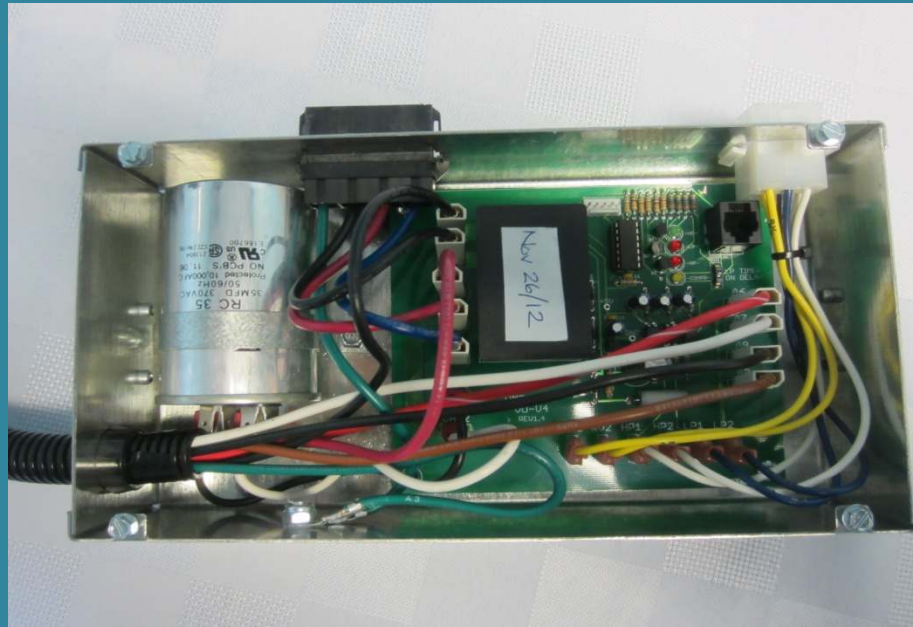


Figure 7a – Legacy Kit V4 ( with Digital Controller)

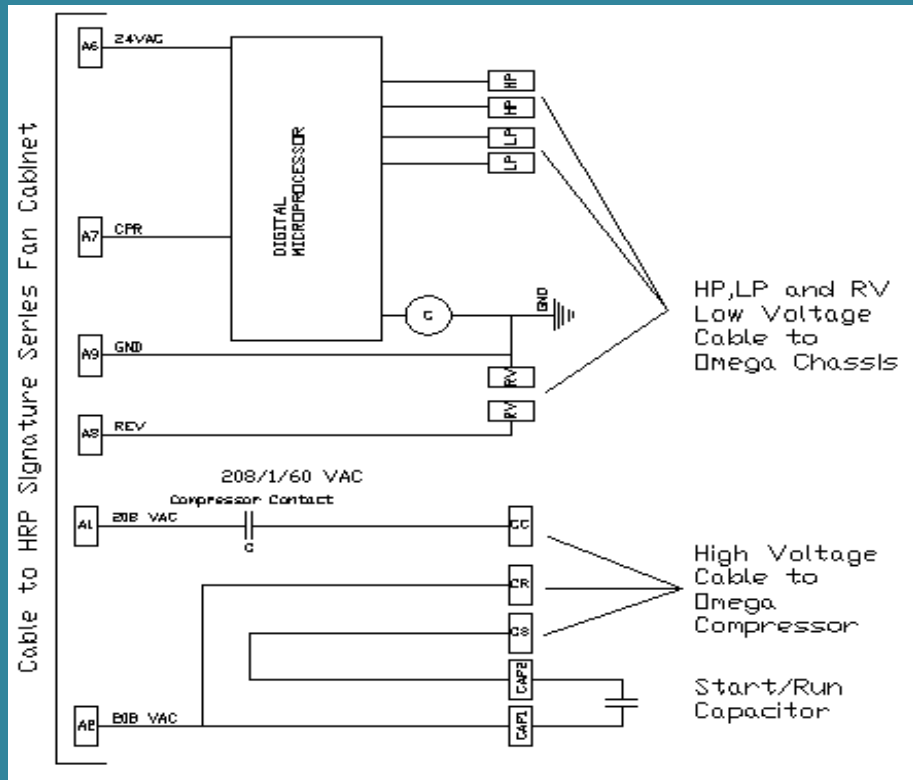


Figure 7b – Legacy Kit V4 Circuit ( with Digital Controller)