



Installation Instructions for Refrigerant Detection Kit

HWC8, HWC9 & EWC

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West Columbia, South Carolina, USA

508706-01
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RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent or service agency.

CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

WARNING



Electric Shock Hazard. Can cause injury or death. Unit must be properly grounded in accordance with national and local codes. Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

CAUTION

Refrigerant Detection System installed. Unit must be powered except for service.

WARNING

RISK OF ELECTRIC SHOCK. CAN CAUSE INJURY OR DEATH: System contains two independent protective earthing (grounding) terminals which both shall be properly connected and secured.

WARNING

If this appliance is conditioning a space with an area smaller than T_{Amin}, then that space must be without continuously operating open flames (e.g. an operating gas appliance) or other potential ignition sources (e.g. an operating electric heater or similar hot surface). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest system.

T_{Amin} Table

Charge (lb)	< 4	4	6	8	10
Charge (kg)	< 1.8	1.8	2.7	3.6	4.5
Minimum Conditioned Area (ft ²)	N/A*	60	90	120	150
Minimum Conditioned Area (m ²)	N/A*	5.6	8.4	11.2	14.0

CAUTION

Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

WARNING

Auxiliary devices which may be a potential ignition source shall not be installed in the duct work. Examples of such potential ignition sources are hot surfaces with a temperature exceeding 700°C and electric switching devices.

WARNING

For appliances using A2L refrigerants connected via an air duct system to one or more rooms, only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.

CAUTION

Any service personnel installing, decommissioning, or performing maintenance on the unit must be properly trained with A2L refrigerants.

IMPORTANT

RDS system requires 3 VA additional loading on low voltage transformer.



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NOTE – Multiply values in T_{Amin} table by the Altitude Adjustment Factors to correct T_{Amin} based on installed altitude.

Altitude Adjustment Factor

Altitude (m)	0	200	400	600	800	1000	1200	1400	1600
Altitude (ft)	0	660	1310	1970	2620	3280	3940	4590	5250
Adj. Factor	1	1	1	1	1.02	1.05	1.04	1.1	1.12
Altitude (m)	1600	1800	2000	2200	2400	2600	2800	3000	3200
Altitude (ft)	5250	5910	6560	7220	7870	8530	9190	9840	10500
Adj. Factor	1.12	1.15	1.18	1.21	1.25	1.28	1.32	1.36	1.4

WARNING

All systems equipped with at least 4 lbs of low-GWP A2L-classified refrigerant are required to have a refrigerant leak detection system installed to prevent the buildup of low-flammable refrigerant in enclosed spaces of the HVAC equipment. A refrigerant detection system may be required for systems that have less than 4 lbs of low-GWP refrigerant. For more information on this, contact Technical Support.

Installing OEM low GWP residential HVAC equipment without a refrigerant detection system may lead to a fire hazard within the home in the event of a refrigerant leak.

WARNING

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

WARNING

Ducts connected to an appliance shall not contain a potential ignition source.

Shipping and Packing List

- 1 – Thermostat harness
- 1 – Float switch harness
- 1 – Mitigation board harness
- 1 – RDS board
- 1 – RDS sensor 80"
- 1 – RDS Sensor electrical box
- 1 – RDS Sensor electrical box cover
- 1 – RDS sensor bracket
- 3 – Screws
- 1 – Installation manual
- 1 – RDS label
- 1 – Heyco open/closed shorty bushing – 16.0 mm
- 1 – Heyco rubber grommet – 22.2 mm

General

This kit outlines the procedures to install the sensor mounting bracket and the installation of the sensor to the bracket, including wiring procedures.

The Low GWP Refrigerant Detection System ensures safe operation of the residential HVAC systems equipped with low GWP A2L-classified refrigerant (R-454B).

The RDS Non-Communicating Blower Control Board activates the blower in the event the refrigerant concentration in the cabinet begins to rise. The control will activate the blower if the concentration reach 12% of the lower flammability limit (LFL) whereas the UL standard is 25% of the LFL. The Control board will also interrupt power to the ignition sources in the HVAC system when it detects refrigerant.

After refrigerant concentrations have been reduced to safe levels, the RDS Non-Communicating Blower Control Board allows the HVAC system to resume normal functionality. The HVAC system will operate normally if the RDS Non-Communicating Blower Control Board is functioning.

IMPORTANT

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be tested on completion of charging but prior to commissioning. A follow up test shall be carried out prior to leaving the site.

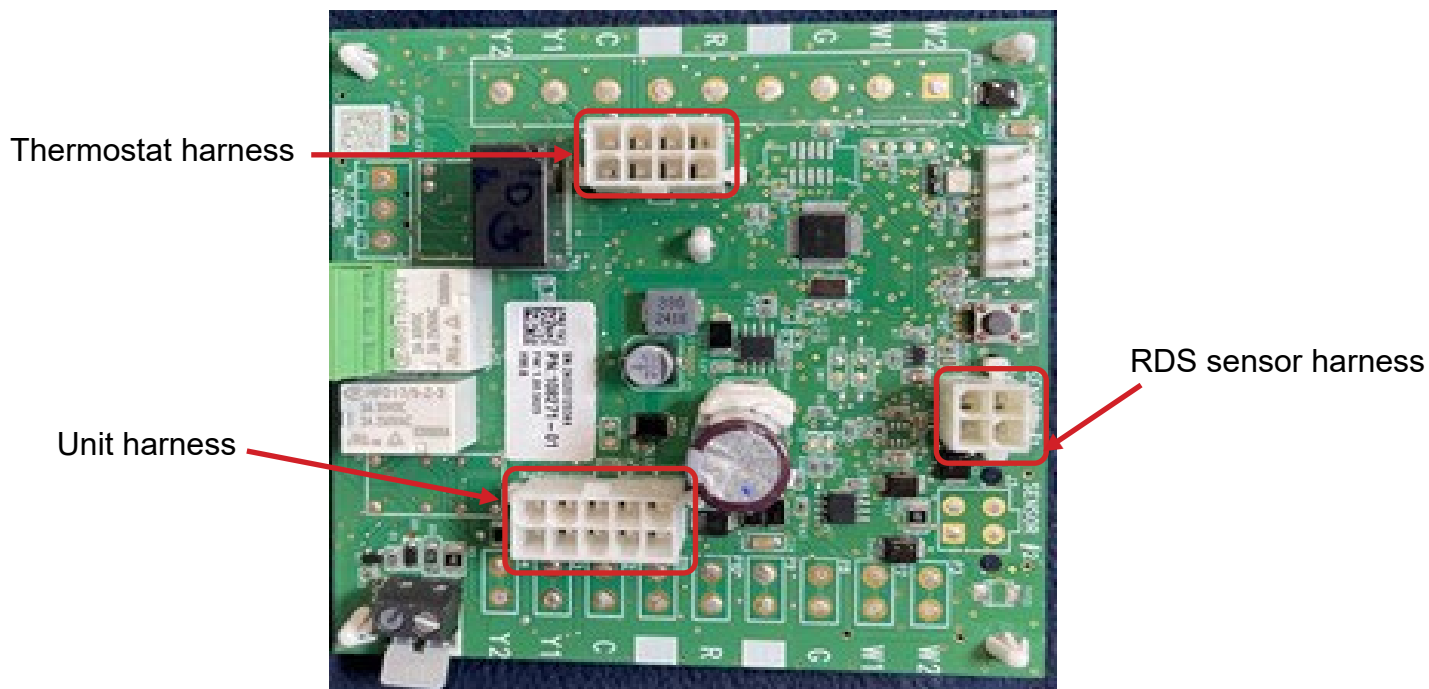


FIGURE 1 RDS Non-Communicating Blower Control Board

- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the detection equipment being used is suitable for use with all applicable refrigerants, i. e. non-sparking, adequately sealed or intrinsically safe.
- If any hot work is to be conducted on the refrigerating equipment or any associated parts, the appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.
- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out.
- Pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards.
- All field joints shall be accessible for inspection prior to being covered or enclosed.
- Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance. The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS as applicable:
 1. The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.
 2. The ventilation machinery and outlets are operating adequately and are not obstructed.

3. If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
 4. Markings on the equipment should be visible and legible. Markings and signs that are illegible shall be corrected.
 5. Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.
- For systems containing refrigerant, all repair and maintenance to electrical components shall include initial safety checks and component inspection procedures such as that capacitors are discharged in a safe manner to avoid possibility of sparking, that no live electrical components and wiring are exposed while charging, recovering, or purging the system, and that there is continuity of earth bonding. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used that is reported to the owner of the equipment, so all parties are advised.

NOTE –*Sealed electrical components shall be replaced, not repaired.*

NOTE –*Intrinsically safe components must be replaced, not repaired.*

NOTE –*All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out with work in confined spaces being avoided.*

- Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant. A halide torch (or any other detector using a naked flame) shall not be used. The following detection methods are deemed acceptable for all refrigerant systems. Electronic detectors may be used to detect refrigerant, but in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and that 12.5 % refrigerant is confirmed. Detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. In the event refrigerant is detected by sensor, all naked flames shall be removed/ extinguished. If refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from refrigerant detection.

- When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed and, since flammability is a consideration, procedures such as safely removing refrigerant following local and national regulations, purging the circuit with inert gas (optional for A2L), evacuating (optional for A2L), or opening the circuit by cutting or brazing be adhered to. The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to be able to perform the required work. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and working area is well ventilated.

Operating Environment Specifications

The Low GWP Refrigerant Detection Kit is designed to withstand the following conditions:

Condition	Temperature Range
Normal Operation	-40°F - 185°F (40°C - 85°C)
Shipping/Storage	
	Functional Range
Humidity	10% to 90% non-condensing at 104°F (40°C)

Installation

Sensor Part Number Verification

Verify the refrigerant detection system sensor's part number, which is found on the sensor/cable, prior to installation. The part number is 107648-01.

NOTE: *All sensors paired to a single RDS Non-Communicating Blower Control Board **must share the same part number** (107648-01) to ensure the RDS Non-Communicating Blower Control Board will function properly.*

Mounting Methods

Some mounting surfaces may be difficult to access after the RDS Non-Communicating Blower Control Board is installed. To avoid this or a similar situation wire the RDS Non-Communicating Blower Control Board unit prior to mounting in a confined space.

For drywall/closet installations, use the included drywall hardware.

Mounting Location

The RDS board can be mounted to the side drywall or on the duct within 48 inches of the refrigerant sensor cable grommet on the HWC & EWC cabinet. Drywall anchors and screws are provided for installation in finished areas, such as closets. Mount the RDS Non-Communicating Blower Control Board in a clean, dry environment that is away from dust, water, and other contaminant accumulation.

NOTE: *Mounting the RDS Non-Communicating Blower Control Board farther than 48 inches away from the refrigerant sensor may prevent reliable operation due to cable strain and water see page 7 on cable connections.*


- **Do not** place the RDS Non-Communicating Blower Control Board in secondary drain pan
- Use the screws provided to mount the RDS Non-Communicating Blower Control Board
- Tighten the screws to a snug fit

NOTE: *Do not over-tighten the screws. Over-tightening the screws may strip the hardware and apply excessive stress on the enclosure.*

Refrigerant Detection System Sensor

The refrigerant detection system sensor must be mounted as specified in its accompanying manual. Mounting the sensor incorrectly or in an improper location may result in refrigerant detection failure.

Bracket / Sensor Installation

Bracket Identification	
Part Number	Bracket
628100-01	

Refer to the installation instructions for the specific unit being updated.

WARNING

Do not strap the RDS Non-Communicating Blower Control Board to existing tubing or other electrical cables.

- 1 - Bend the bracket from the dash line such that both hole on rectangular flanges align with the holes on triangular flange from inside while keeping the sensor in it. Route the sensor wire from the semi-circle cut. See figure 2 & 3.



FIGURE 2.

Condensate Safety Switch (Float Switch)

In applications in which a condensate safety switch (float switch) is factory installed, the float switch must be wired between the room thermostat and the Refrigerant Detection System.

The float switch's normally closed contacts may be wired to interrupt the "R" wire or the "Y" wire between the thermostat and the RDS Non-Communicating Blower Control Board. See the RDS Non-Communicating Blower Control Board wiring diagrams. This ensures the RDS Non-Communicating Blower Control Board is powered continuously and operates normally. Do not wire the condensate safety switch or any other field installed safety switches between the indoor unit transformer and the RDS Non-Communicating Blower Control Board. The RDS Non-Communicating Blower Control Board must remain powered at all times.



FIGURE 3

- 2 - Refer to the figure 3. to assemble the screws between the aligned holes.
- 3 - Install the sensor bracket into the cabinet along the inlet duct on the bottom of the unit below the removable chassis. An alignment hole is provided for location purposes only. DO NOT install below the drain hole of the cooling chassis.



FIGURE 4.



FIGURE 5A.



FIGURE 5B.

- 4 - Assemble the grommet to the holes. Guide the cable through the grommet as show in figure 6. Cable should have small bend (drip loop) as shown in figure 5.

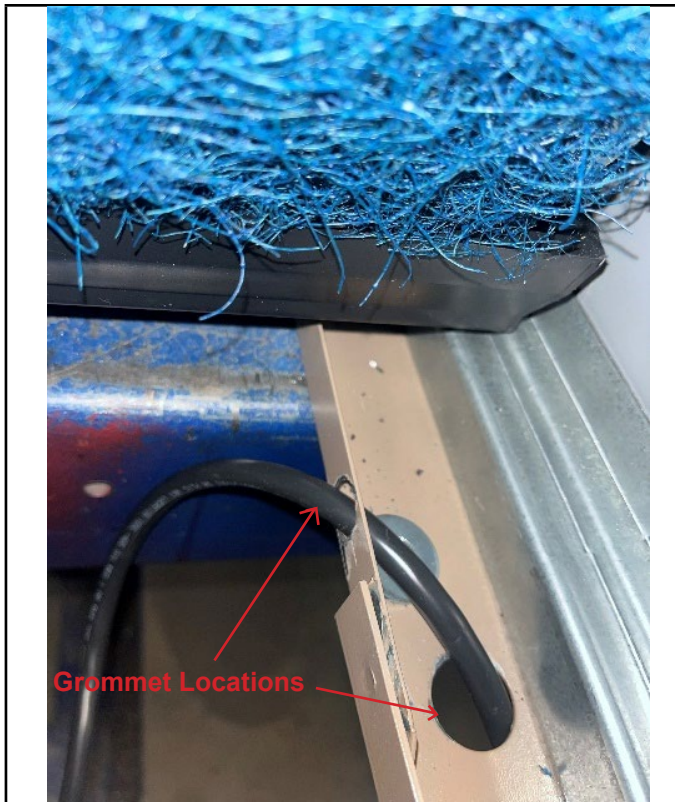


FIGURE 6

- 3 - The cable can be guided from left or right side of the inlet duct of the cabinet such that the sensor cable can be connected to the RDS board.

Making the Connection

- 1 - Make sure all power to the unit and thermostat is off prior to making any connections.
- 2 - Disconnect the thermostat leads to the unit.
- 3 - Connect the mitigation board harness (108074-02) to the RDS board. Connect the leads of the mitigation board harness to the thermostat leads from the cabinet.
- 4 - Connect the thermostat harness (108065-03) to the RDS board. Connect the leads of the thermostat harness to the thermostat wires going to the unit thermostat.
- 5 - Connect the cable from the mitigation sensor to the RDS Board.
- 6 - Connect the float switch harness (if applicable) to the RDS board. Route the wires into the cabinet along with the RDS sensor.
 - a.) Disconnect the float switch connections to the chassis.
 - b.) Connect the new float switch harness directly to the float switch in the chassis.
 - c.) Reconnect the two wires that originally connected to the float switch (see Figure 7).

Verify the connection is free of dust, debris, and moisture.

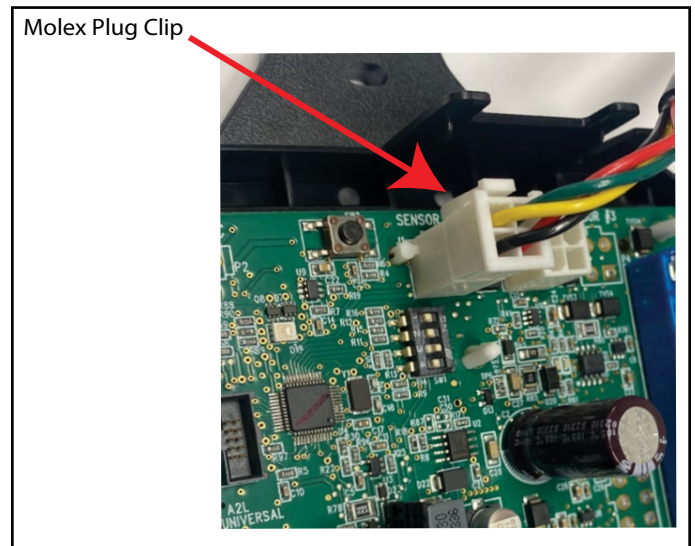


FIGURE 7. Connecting the RDS Sensor to RDS Non-Communicating Blower Control Board

Modes of Operation

The modes of operation for the RDS Non-Communicating Blower Control Board are Initializing, Normal, Refrigerant Detected, and Fault.

Initializing

The RDS Non-Communicating Blower Control Board is establishing connection with the refrigerant detection sensor and is completing an initial five (5) minute purge sequence.

Normal

The HVAC system is functioning normally. The RDS Non-Communicating Blower Control Board has not detected refrigerant.

Refrigerant Detected

When the RDS Non-Communicating Blower Control Board detects refrigerant :

1 - The RDS Non-Communicating Blower Control Board shuts off the (R) input (24VAC power) to the thermostat, which de-energizes the outdoor unit compressor and heat sources, such as gas and/or electric strip heat. No heating or cooling demands will be met.

2 - The RDS Non-Communicating Blower Control Board activates the blower (high speed). The blower purges refrigerant from the cabinet, plenum, and ductwork.

3 - After the RDS Non-Communicating Blower Control Board determines the refrigerant levels are below the safety threshold, the blower will continue to function for an additional seven (7) minutes.

4 - After the blower sequence is complete, the HVAC system resumes normal operation.

NOTE: *The HVAC system may not maintain a cooling or heating setpoint if a significant refrigerant exists. Any refrigerant that remain unaddressed for an extended time may cause the HVAC system to shut down on a low refrigerant pressure limit condition.*

Fault

When a fault is detected within the RDS Non-Communicating Blower Control Board, the indoor unit blower engages and remains engaged at a constant output until the fault is cleared.

Diagnostic Codes

The RDS Non-Communicating Blower Control Board is equipped with a multicolor LED within its enclosure. The LED signals the state of the RDS Non-Communicating Blower Control Board.

See Table 1 to review the diagnostic codes.

TABLE 1 LED Diagnostic Codes

State	LED Diagnostic Code	Action
Initializing	Flashing green ¹	Not Applicable
Monitoring	Solid green with blue flash ²	Not Applicable
Refrigerant Detected	Flashing blue	Check coil tubes for refrigerant Repair the issue and restart the equipment.
Fault/Service	Solid blue, interrupted by issue flash code	Refer to Table 6 for troubleshooting steps.

¹ A rapid flash indicates the RDS Non-Communicating Blower Control Board is in the process of sensor enumeration

² A blue flash indicates the sensor has previously detected refrigerant and ran its sequence of operation.

Red LED Diagnostic Codes

Red diagnostic codes indicate a specific RDS Non-Communicating Blower Control Board issue. Yellow diagnostic codes indicate the sensor's position (if applicable).

TABLE 2 Red LED Diagnostic Codes

Red Flash	Applies to Individual Sensor(s)	Issue	Action
1	Yes	Sensor indicates fault	Replace the sensor
2	No	Spare Code - Unused	Not Applicable
3	Yes	Incompatible sensor type	Replace with a compatible sensor
4	Yes	Sensor communications issue	Check sensor connection. Ensure connection is clean and tight.
5	No	R-input not available	Check for 24VAC power connection to the R terminal inputs on the RDS Non-Communicating Blower Control Board. R-inputs must be energized for the RDS Non-Communicating Blower Control Board to function.

Test Button Functionality

The RDS Non-Communicating Blower Control Board is equipped with a Test/Reset button. The Test button can be used to complete several functions, depending on the mode of operation of the RDS Non-Communicating Blower Control Board.

Table 3 lists the functions of the Test button during each mode of operation.

TABLE 3 Test Button Function

Mode of Operation	Press the Test Button to...
Normal	Trigger a Refrigerant detection response. Verify all equipment is wired correctly into the RDS Non-Communicating Blower Control Board (after installation).
Refrigerant Detected	Reset the RDS Non-Communicating Blower Control Board to a normal mode of operation after refrigerant has been detected and purged from the HVAC system.
Fault	Reset the RDS Non-Communicating Blower Control Board after troubleshooting and resolving a fault condition. If the fault is not resolved, the RDS Non-Communicating Blower Control Board will enter the Fault mode again.

Test Button - Additional Functions

Table 4 lists the additional functions of the Test Button while the RDS Non-Communicating Blower Control Board, is functioning within the states of Initializing, Monitoring, Refrigerant Detection, Servicing and Fault. Refer to "Table 5. LED Diagnostic Codes" on page 11.

TABLE 4 Additional Button Functions

State	Press	Action
Initializing	Short	Skips remaining pre-purge after sensors are recognized by the RDS
Initializing	Long	Reset control
Monitoring	Short	Clear purge-counter if prior refrigerant detection response has occurred; Test refrigerant detection response
Monitoring	Long	Reset control
Refrigerant Detected	Short	If testing refrigerant detection cycle, end test
Servicing	Short	Reevaluate fault condition - if cleared return to monitoring, otherwise update indicator
Servicing	Long	Reset control
Fault	Short	Reevaluate fault condition - if cleared return to monitoring, otherwise update indicator
Fault	Long	Reset control

Thermostat Compatibility

Thermostats that preserve memory settings are compatible with the RDS Non-Communicating Blower Control Board. Examples include:

- Battery-powered thermostats
- Analog thermostats
- Smart thermostats
- Late-model programmable thermostats

NOTE: *Early-generation digital and programmable thermostats may not retain the operation mode and temperature setpoints after a power outage.*

The following scenarios are likely to occur when home occupants are not available to adjust the thermostat setpoints as the system is recovering from refrigerant detection and resuming normal operation:

- Heating could be lost during a cold night
- Cooling could be lost during a hot day
- The thermostat could reset to an incorrect temperature setpoint

Compatibility Verification

Complete the following process to determine whether the thermostat is compatible with the RDS Non-Communicating Blower Control Board.

- 1 - Change the thermostat's current setpoint and operating mode.
- 2 - Power cycle the breaker to the furnace or air handler.

NOTE: *Wait five (5) minutes before supplying power to the furnace or air handler breaker.*

- 3 - Note whether the thermostat maintained its setpoints and operating mode.

- a. If the thermostat maintained the settings, the thermostat is compatible with the RDS Non-Communicating Blower Control Board.
- b. If the thermostat did not maintain its setpoint and/or operating mode, the thermostat is not compatible with the RDS Non-Communicating Blower Control Board. Recommend replacing with a compatible thermostat.

Additional Applications

In zoned applications, all dampers will remain open when the RDS Non-Communicating Blower Control Board is in Fault or Refrigerant Detected mode. Normal heating and cooling demands are permissible, but the blower will remain engaged until the fault condition is addressed.

Zone HVAC System

If the RDS Non-Communicating Blower Control Board is installed in a zone HVAC system, the RDS Non-Communicating Blower Control Board will open all zone dampers if refrigerant is detected.

NOTE: *Proper wiring of the zone panel to the RDS Non-Communicating Blower Control Board is required for all zone dampers to open.*

After the purge sequence is complete, the zone system will resume normal operation.

External Alarm

(For applications with external alarms wired directly to the RDS Non-Communicating Blower Control Board.)

The RDS Non-Communicating Blower Control Board triggers the external alarm system when it enters Refrigerant Detected mode. For alarm notifications, the RDS Non-Communicating Blower Control Board provides a dry relay contact that is rated 3A at 30 VAC/DC.

Start Up Test Procedure

The RDS Non-Communicating Blower Control Board is equipped with a Test/Reset button, see “Test Button Functionality” on page 9. After the RDS Non-Communicating Blower Control Board has been mounted and wired, restore power to the HVAC system. The system will then run through a purge sequence for five (5) minutes. After the purge sequence is complete, proceed to testing cooling demand and heating demand.

Cooling Demand

- 1 - Prompt a cooling demand at the thermostat.
- 2 - Press the Test button on the RDS Non-Communicating Blower Control Board.

The system then executes a refrigerant detection response.
- 3 - Observe the following sequence:
 - a. The LED indicator flashes the sequence for refrigerant detection (flashing blue).
 - b. The blower powers up.
 - c. The outdoor compressor powers down.
- 4 - Press the Test button to terminate the simulated Refrigerant Detected mode upon test completion.

Heating Demand

1. Prompt a heating demand at the thermostat.
2. Observe the following sequence:
 - a. The LED indicator flashes the sequence for leak detection (flashing blue).
 - b. The blower powers up.
 - c. The gas burners power down.
 - d. The outdoor compressor powers down.
3. Press the Test button to terminate the simulated Leak Detected mode upon test completion.

The installation of the RDS Non-Communicating Blower Control Board is complete after both sequences are successfully completed.

NOTE – REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS shall only be replaced with sensors specified by the appliance manufacture.

Diagnostic Codes and Troubleshooting

TABLE 5 LED Diagnostic Codes

State	LED Diagnostic Code	Action Required
Initializing	Flashing green	None
Monitoring	Solid green. If refrigerant has been detected previously, a blue flash interrupts the solid green LED.	None
Refrigerant Detected	Flashing blue	Check coil tubes for refrigerant. Repair the issue and restart the equipment.
Fault/Service	Solid blue, interrupted by issue diagnostic code.	Refer to Table 6 for troubleshooting steps.

TABLE 6 Red LED Diagnostic Codes / Troubleshooting

Red Flash	Applies to Individual Sensor(s)	Issue	Action Required
1	Yes	Sensor indicates fault	Replace the sensor (See "Refrigerant Detection System Sensors").
2	No	Float Switch/Blocked Drain Alarm	Check the drain for blockage and float switch operation. Ensure float switch connection is clean and tight.
3	Yes	Incompatible sensor type	Replace the sensor (See "Refrigerant Detection System Sensors").
4	Yes	Sensor communications issue	Check sensor connection. Ensure connection is clean and tight.
5	No	R-input not available	Check sensor connections. Ensure connection is clean and tight.

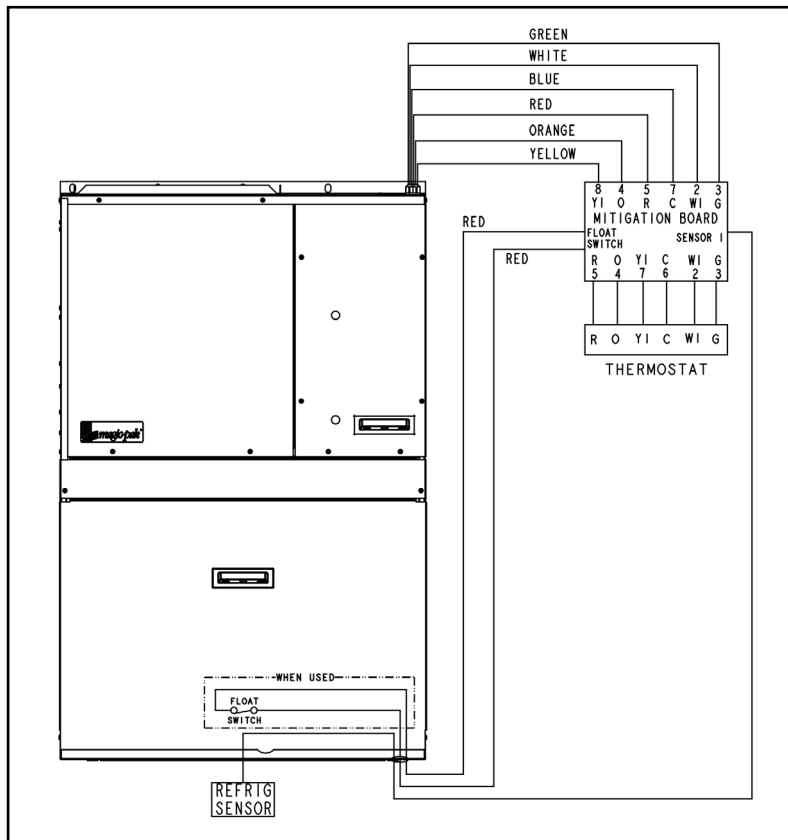


FIGURE 8. V-SERIES MAGIC PAK RDS KIT WIRING DIAGRAM

LABEL INSTALLATION

⚠ IMPORTANT

Apply all warning labels to the plenum. Warning label application shown in figure 9 below.

This is applicable only during initial coil installation and is not applicable to existing installations.

When a coil is configured for R-454B refrigerant during installation, the nameplate is required to be marked and all warning labels must be applied to the coil front panel before the refrigerant detection system installation is completed.

Warning labels **MUST BE VISIBLE** to service or inspection personnel. All required warning labels are provided in this Refrigerant Detection System kit. The labels that must be installed are:

107662-01



FIGURE 9.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before starting decommissioning.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure, ensure that:
 - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - all personal protective equipment is available and being used correctly;
 - the recovery process is supervised at all times by a competent person;
 - recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.

- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with instructions.
- h) Do not overfill cylinders (no more than 80% volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

Sensor Maintenance

It is recommended to check the state of the sensor every 6 months, at the beginning of each cooling and heating season.

- Ensure that the sensor opening is clear and free of debris.
- Check that the sensor cable is in good condition.
- DO NOT use abrasive cleaning solutions to clean sensor opening.
- DO NOT use flammable compressed air solutions to clean the sensor opening.
- DO NOT vacuum sensor inlet opening, as this could cause damage to the sensor internal components.
- DO NOT use detergents to clean sensor.
- When cleaning the evaporator coil, remove sensor from the coil. Follow recommended coil cleaning guidelines as described in installation instructions.



FIGURE 10. Example of Clear, Unobstructed Sensor Inlet