

## Trailer Guide

### Start-Up (Trailer Driver)

- Turn generator on
- Enable thermostat in control compartment for trailer AC unit

### ERV Demo

- Turn demo on using push button
- Turn on AC unit if outdoor air temperature is greater than 70°F
- Open ERV demo on computer desktop
- Use the demo to turn on unit and electric heater (leave energy wheel off)
- Explain how demo simulates a summer operating condition
- Turn the energy wheel on and let the audience feel the air change temperature
  - Can repeat multiple times as needed.
- Click on ASHARE 90.1 button to show the effectiveness of the device. At least 50% is required by code
- Shut demo and AC unit off using push buttons



### Energy Wheel Sample

- Slide out the energy wheel.  
*Demonstrates how Greenheck designs energy wheels to slide out for easy maintenance.*
- Polymer design with silica gel desiccant has the following advantages
  - Highest performance available (70-80% effective)
  - Easy to maintain and service
  - Long life time, 15-20 years

### Energy Core Samples

- Broadens Greenheck's energy recovery offering
- Fiber membrane (-FM) and Polymer membrane (-PM) material
  - **Fiber membrane** core is available on MiniCore and ECV models.
    - Vacuum cleanable

- 0-1% cross leakage
  - 50-60% effective
- **Polymer membrane** core is available on ECV models only.
  - Washable
  - 0-1% cross leakage
  - Offers ~200 cfm in increased air performance per core due to lower pressure drop.
  - ~5% increase in ERR compared to fiber membrane core.
- Great for small CFM applications
- Allows Greenheck to provide unbiased design advise on both technologies

### RV/E Overview

- 2-inch R13 foam construction
- 20-100% outdoor air with modulating damper control
- Modulating hot gas reheat for dehumidification control
- Direct drive plenum fans with VFDs for up to 18,000 CFM of airflow
- 70 tons of cooling capacity
- 16:1 modulating gas fired furnaces
- Can be used in many applications including schools, hotels, and conference centers.

### Compressor Offerings

- Standard, Digital, and Inverter scroll compressor offerings
- Why Inverter compressors?
  - Improve part load efficiency values (IEER) by 15-20%
  - Reduced sound levels compared to digital compressors
    - Digital compressors load and unload based on cooling demand
      - Motor and scrolls always rotate
    - Inverter compressors use VFD to change frequency and vary refrigerant flow
  - Provide precise temperature and humidity control

### Gymnasium Demo

- Turn RV demo on
- Open gym demo on computer desktop
- Use demo to turn unit on
- Highlight that Greenheck's controller has all of the sequences required for this application. "Plug and play" system
- Go through each occupancy example
- Empty
  - System at minimum speed and damper position
- Gym Class
  - System increases speed and damper to adjust to changing loads



- School Assembly
  - System further increases speed and damper to adjust to changing loads
- Basketball Game
  - System goes to maximum speed and damper to adjust to changing loads
- Greenheck's modulating fans, compressors, and furnaces make RV and RVE ideal for these single zone VAV applications

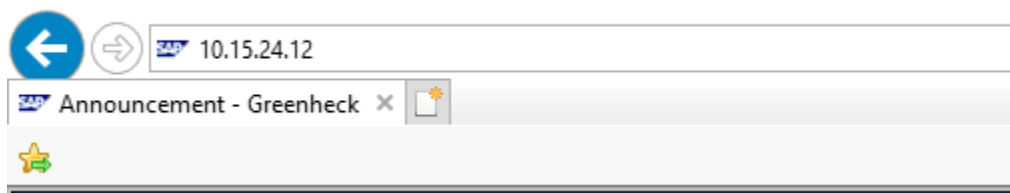
### Low Sound Demo

- **Make sure audience is not standing in front of the fans**
- Start standard fan with push button
- Notice the amount of noise generated
- Shut off standard fan with push button
- Make sure potentiometer is set to 10V and then turn on low sound fan (ECM fan)
- This fan features an EC motor so it has soft start. Even at full speed about 50% quieter than standard condenser fans
- Use the potentiometer to talk about modulating head pressure control. The condenser fan responds to the cooling demand making the system even quieter
- Greenheck provides 5 planes of radiated sound testing in our AMCA chambers. Prints in our submittals
- Shut off low sound fan using push button.



### Controls

- Turn RV Demo on using green push button.
- Explain our upgrade to the C.PCO Carel control platform which now provides an expanded controller points list, larger IO expansion board, and a standard web user interface and data logger.
- Open Internet Explorer and type in controller IP address 10.15.24.12 into browser to pull up web user interface. The web user interface is a standard feature and can be accessed through the building network with a simple Ethernet connection. Hit the browser refresh button anytime the connection is lost to the controller (Ex. RV Demo is turned off).



- The overview screen graphic will highlight the unit as it was designed and configured from factory. This screen provides current status of the unit and allows the user to adjust temperature setpoints.
- Navigate to Alarm Screen. Explain that this screen allows the user to view current alarms as well past alarms that have been cleared.
- Navigate to Trending Screen. This screen allows the user to trend defined monitoring points. The user can also run a trend for a set period of time and download the trending data to spreadsheet.
- Information screen provides user with DOAS contact support information and the controller IOM.
- Click the live trend button to show an active trend with standard monitoring points of unit.
- Click the unit display button and explain this screen is a mimic of the unit controller screen. Allows the user to fully access the unit for monitoring and setpoint changes.
- All available control sequences are on the controller and can be enabled through the unit configuration menu.
- Menus are easy to navigate for startup and service
- Go into Ctrl Variables/Temp Control menu and show how easy it is to change the temperature control mode. Scroll one window down and show how easy it is to change the temperature setpoint.
- Emphasize that all controls are programmed, tested, and supported by Greenheck
- Controls are capable of full BMS integration for both monitoring and control.

### **eCAPS**

- Explain how eCAPS is web based and doesn't require any downloads
- RV and RVE products are now available in eCAPS
- Walk the audience through a selection. Ask them for airflows and temperatures to make selections
- Selections take less than a minute and provide them all the information they need for preliminary design (performance, electrical, weight, and size)

### **Remote Condenser**

- New remote condenser offering available on models RV and RVE
- Up to 30 tons of cooling
- 25-feet of elevation and 100-feet of equivalent line run
- Modulating hot gas reheat capabilities
- Easy installation for contractor because Greenheck takes care of control and hot gas reheat piping at the factory
- Ideal for applications like single story schools where the unit is in the attic and the condenser is pad mounted outside

### **Closing Comments**

- Greenheck continues to expand its heating and cooling products
- Greenheck has invested significantly in development of these products
  - Five manufacturing locations (WI, MN, NC, CA and OK)
- Greenheck has products for all of their applications

### **Shutdown (Trailer driver)**

- **Make sure computer is shutdown prior to powering down the trailer generator!**