



To: All Customers  
Date: March 12, 2013

**Subject: Upgrade Announcement: Implementation of HARPS System**

We continue to evaluate our customers' suggestions for improvements and implement those which provide more useful data and increased productivity.

We are pleased to announce the implementation of a new system called HARPS (**H**igh **A**mperage **R**emote **P**ower **S**upply). HARPS is a fully automated control system designed to provide control and power to on-car fans including in-line duct, radiator or both. This system will allow the customer to connect all fans to a central connection point and control everything remotely from the control room.

Effective March 18, 2013, the HARPS System will be available for use. The old, manual switch box system including the smaller relay box as provided by Aerodyne and/or any other customer provided power supplies or relay boxes will no longer be used.

System Features:

1. Main power to the system consist of a single DC power supply rated at 250 Amps and variable 0-20 volts, located in the basement balance room
2. Main power supply is designed to control output voltage to a set point with amperage generated as required by the load
3. A pair of 1/0 power cables and a small 24volt control power cable are routed from the basement , up thru the left front ram opening into the engine compartment, thru the firewall on the passenger side, into the greenhouse, where they connect to the HARPS in-car control box
4. A total of 14 discrete channels are available via connection to the control box located in the passenger side of the greenhouse
5. Each channel has a capacity of 50Amps with a total system capacity of 250Amps
6. Each channel is provided with a 50 Amp circuit breaker, Push-To-Test switch and Power-On LED to verify proper hook-up and flow direction prior to test
7. System voltage is adjustable from 0 to 20volts DC. The selected voltage effects all 14 channels
8. System voltage and selection of channels to be "ON" or "OFF" are controlled by the customer using an iPad and a dedicated wireless network
9. Channels selected for "ON" may automatically start and stop in conjunction with tunnel main fans when "AUTO" start is selected.
10. Channel status, channel amperage, total system amperage, and system voltage are simultaneously displayed in real time on the in-car control box, on the iPad, and are recorded in the data
11. For every point of every run, the customer data sheet will record:
  - a. Channel "ON" or "OFF" status,
  - b. Channel Amperage,
  - c. Total System Amperage,
  - d. System Voltage

12. In-car control box includes connection for a single 3" duct hose to simulate connection to media electronics packages

Recording of Data:

The Aerodyn customer Sheet will record all 14 channels of data, for each data point, as follows:

1. Channel "on" or "off" status, Columns SC - SP
2. Channel Amperage, Columns SQ - TD
3. Total system amperage, Column TE
4. System voltage Column TF

If a unique Worksheet is used, the customer is responsible for updating the links to the data. Of course, Aerodyn will assist as necessary.

Aerodyn Responsibilities:

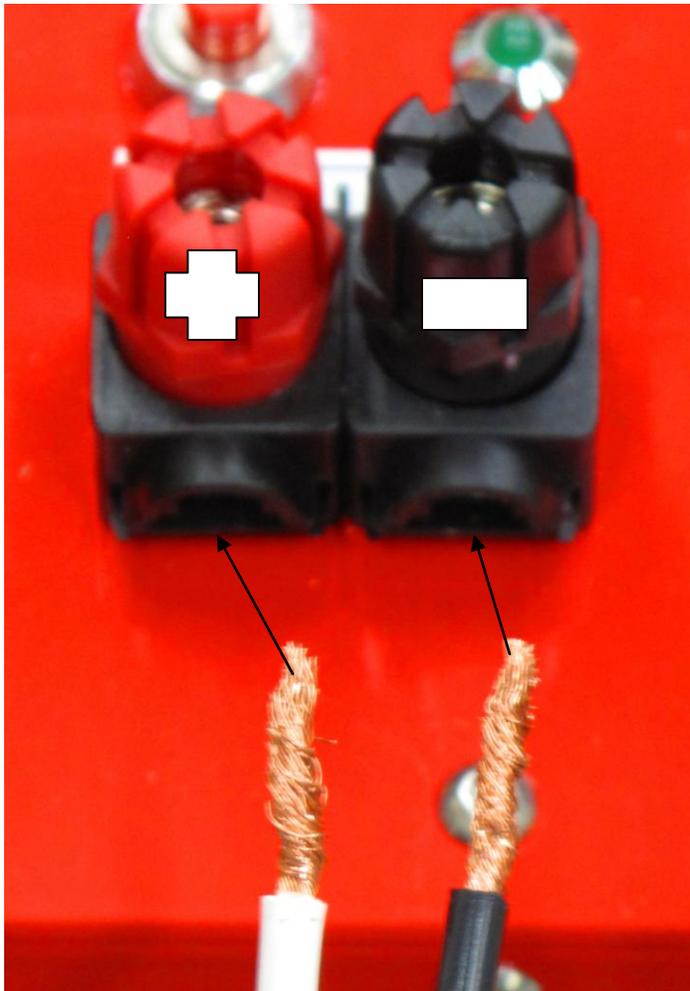
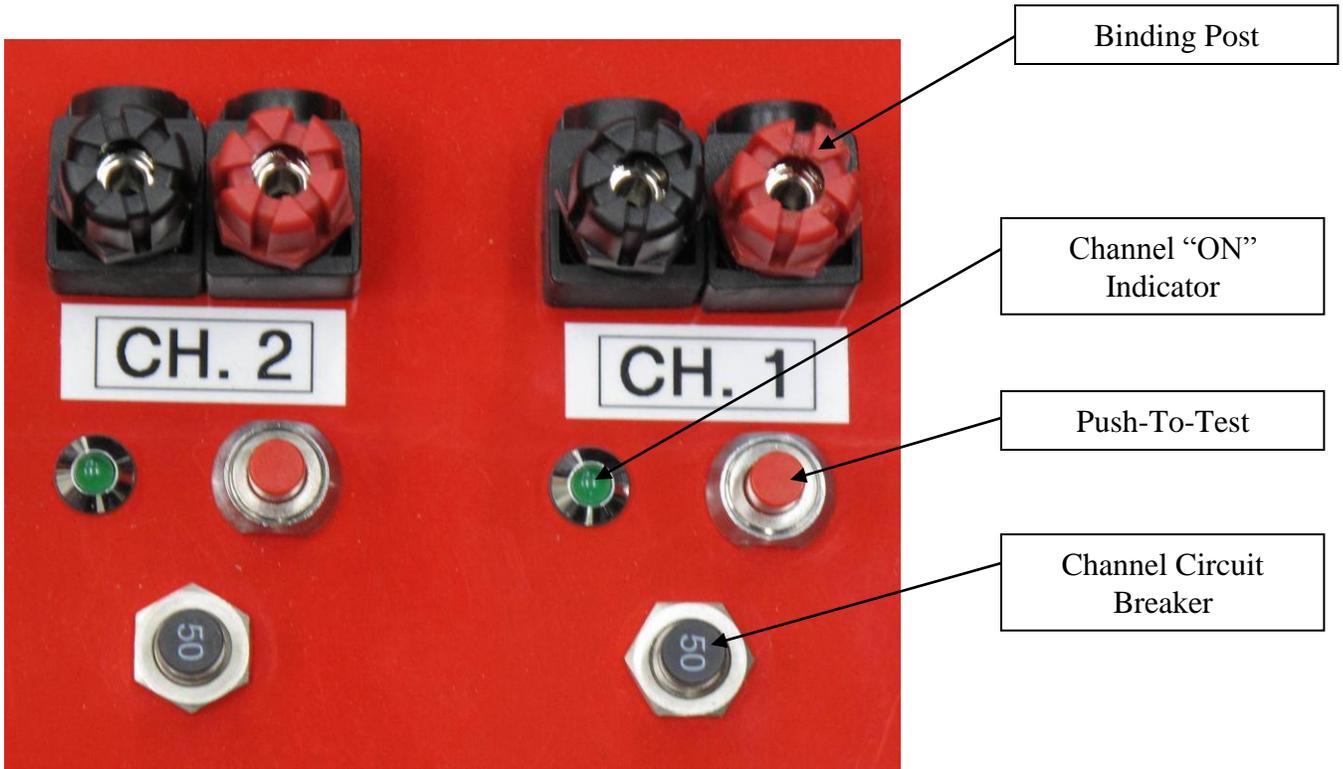
1. Install the main control box in the passenger side of the greenhouse
2. Install main power leads from basement, thru firewall and connect to control box
3. Connect fan leads to proper channels (only when channel assignment is provided by customer)
4. Disconnect, remove and store all Aerodyn equipment

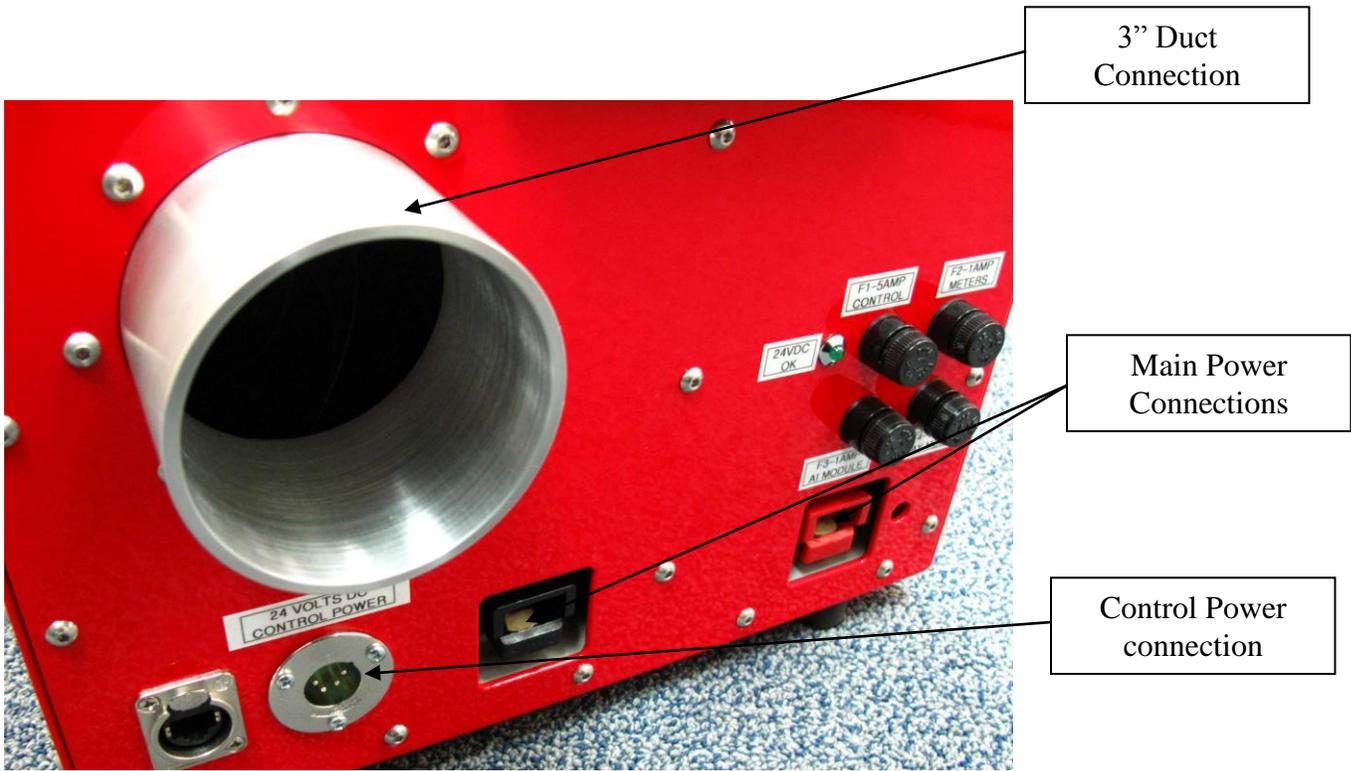
Customer to provide the following:

1. Minimum 1 7/8" diameter hole thru the firewall, on passenger side
2. Space on the passenger side to install the control box
3. Channel assignments for all fans. This information should be provided on the Vehicle Specification Sheet
4. Individual fan leads of proper gauge to carry the amperage
5. Fan leads must be routed to passenger side of the greenhouse, and long enough to reach mid-car
6. Ends of fan leads to be stripped to bare conductors approximately 3/4" long for insertion into binding posts (see picture). This includes any Deutsch fittings and "pigtails" that may be required.
7. Multiple fans may be collected and controlled by a single channel as long as total amperage does not exceed 50 Amps, all leads must fit under the binding posts and are sized for the amperage required.

If you have any questions, please give me a call at 704-942-1582.

Steve Dickert





3" Duct Connection

Main Power Connections

Control Power connection



Wireless Antennae

Bus Voltage

Total Bus Amps

Control box dimensions:  
 18" wide  
 12" deep (front to back)  
 18" tall

Main Power Cables and Control Power Cable to be routed thru firewall, into greenhouse



System Power

Voltage set point

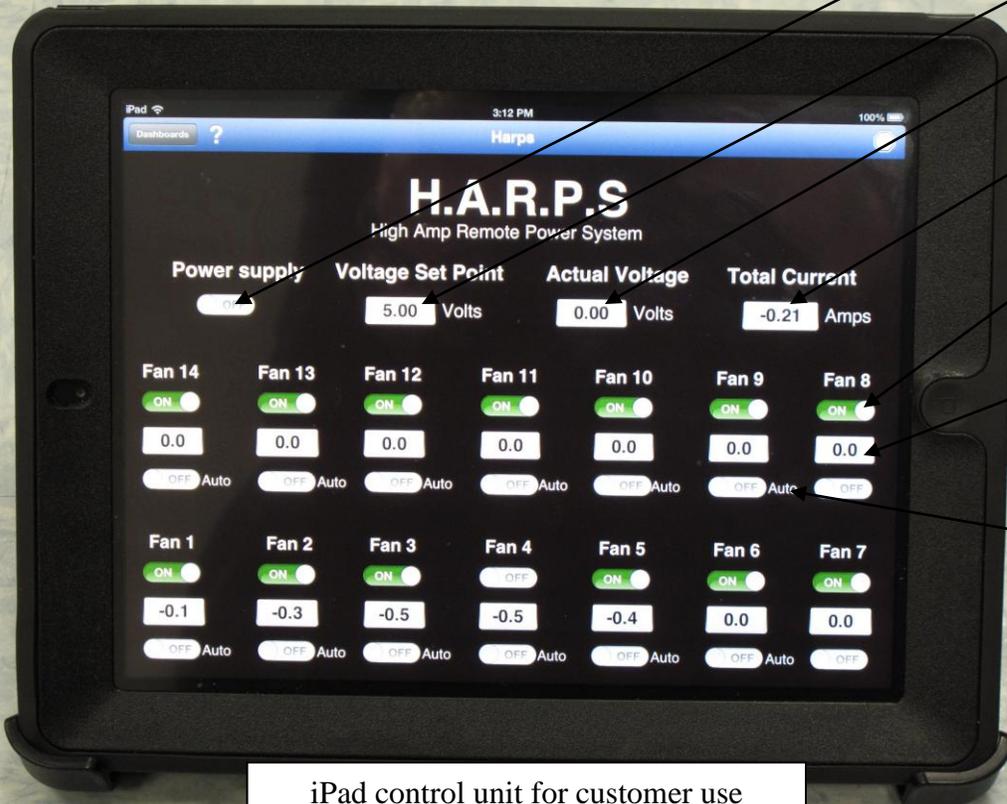
Actual buss voltage

Total Bus Amps

Channel "ON" or "OFF"

Channel Amps

"AUTO" or "MANUAL" selection to energize channel when main fans start



iPad control unit for customer use