



BEA5T

E45 User Manual

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VIP Physical Controls:

1. VIP Main Power Knob

On/Off power for *E45 Audio System & Beast Media Controller*

Note: Car must be running for system to work properly.

2. iPad

3. USB charging cable, one in each seat back pouch

4. MP3 input via USB plug

5. VIP seat adjustment controls

6. Front passenger seat adjustment controls

7. E45 Audio System volume & subwoofer controls

Note: Inboard switches are volume, outboard switches are subwoofer.

8. E45 Audio System volume & subwoofer levels display

9. naim Unitiserve

Note: This is not a CD player. See page 5 for details.

E45 Audio System Input Controls:

NOTE: The vehicle's engine must be running for all E45 Components to function properly.

1. Make sure the Main Power Knob is turned to "ON". This is the main power switch for the *E45 Audio System* and *Beast Media Controller* network. When the switch is "OFF", these features will not work.

When the system is first turned on, "STANDBY" will flash for 2-3 minutes while the system powers up. Once "STANDBY" has stopped flashing, the system is ready to use.



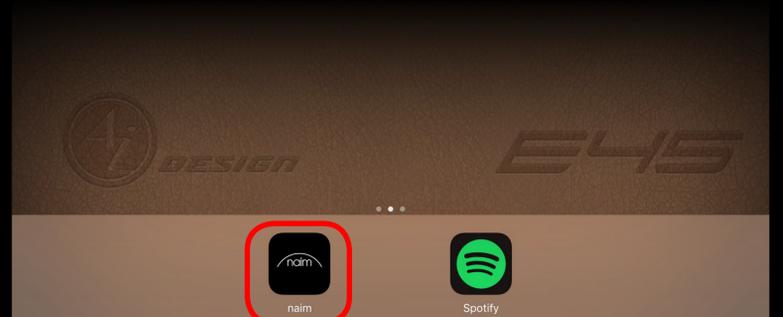
2. Make sure that the iPad, phone or other media device is connected to the vehicle's *Beast Wi-Fi* network.

Password is **XXXXXXXXXX**



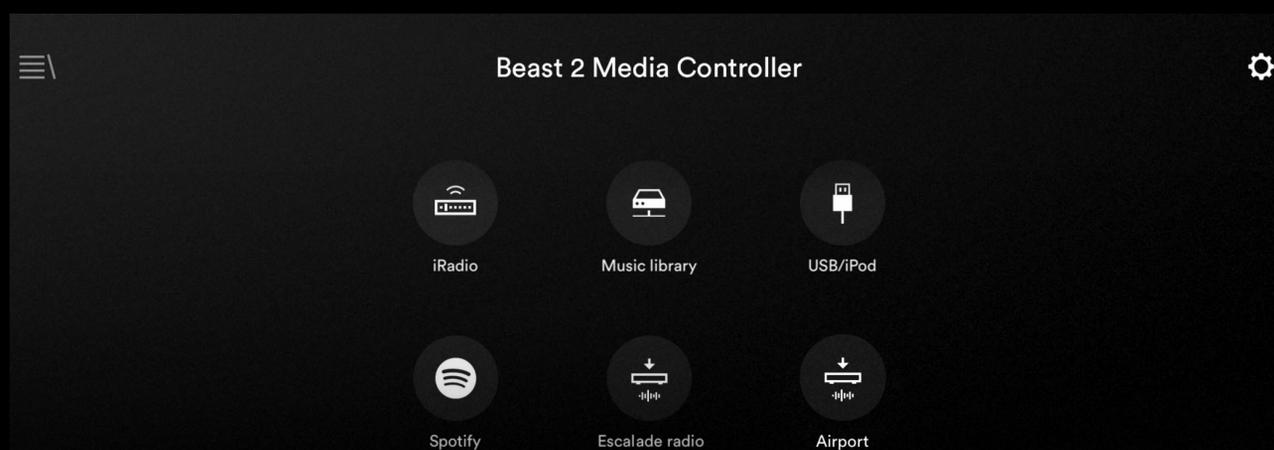
3. Open the *naim* app on the iPad, phone, or other media device and connect to the *Beast Media Controller*

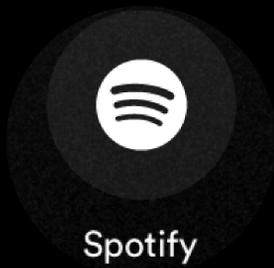
NOTE: Only one device can be connected to the vehicle's *naim Beast Media Controller* at any time. Whichever device is connected is the device you will need to use to switch between media input sources.



4. Select your desired media input source.

- **iRadio:** Listen to a collection of internet radio channels
- **Music Library:** Listen to locally stored music on the *Beast Media Controller*
- **MP3:** Listen to media on a connected device through the USB port in the VIP Center Console.
- **Spotify:** Listen to Spotify media on any device through Spotify Connect.
- **Escalade Radio:** Listen to media being played through the driver's radio
- **Airport:** Listen to any digital media on any device through Apple's Airport.





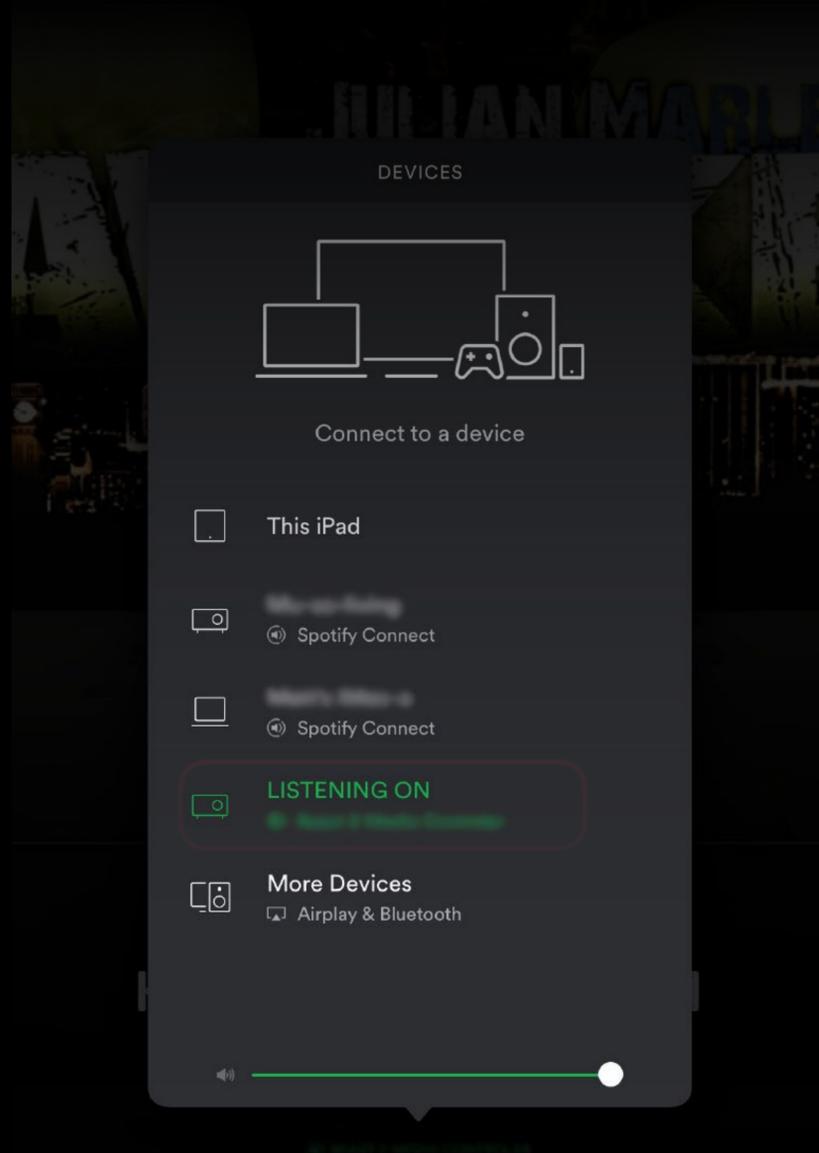
Spotify

Listening to Spotify:

To listen to Spotify on any device, use Spotify Connect to play to the vehicle's *Beast Media Controller*. Make sure your volume is up all the way in Spotify.

If you do not see the *Beast Media Controller* as an option, make sure your device is connected to the *Beast Wi-fi* network.

The *naim* app will automatically switch to Spotify as its media source when a device connects through Spotify Connect.

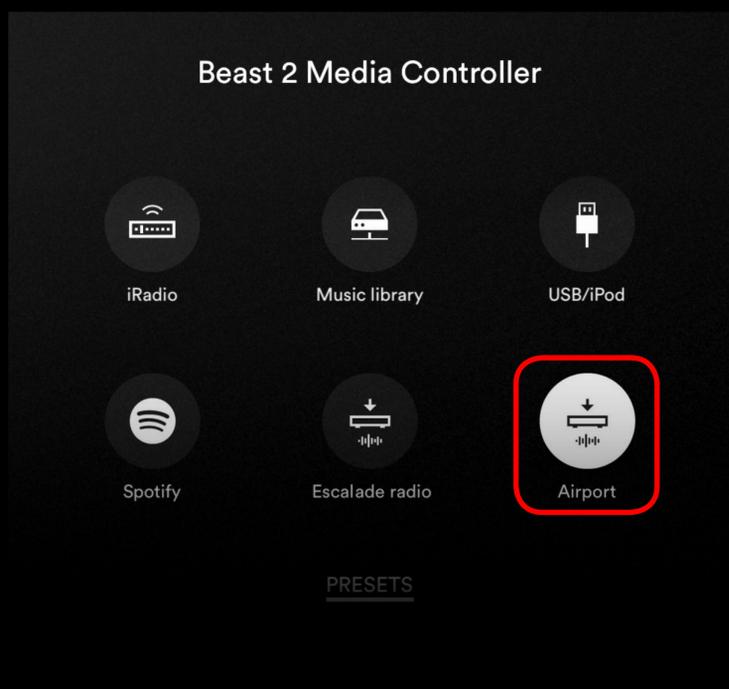
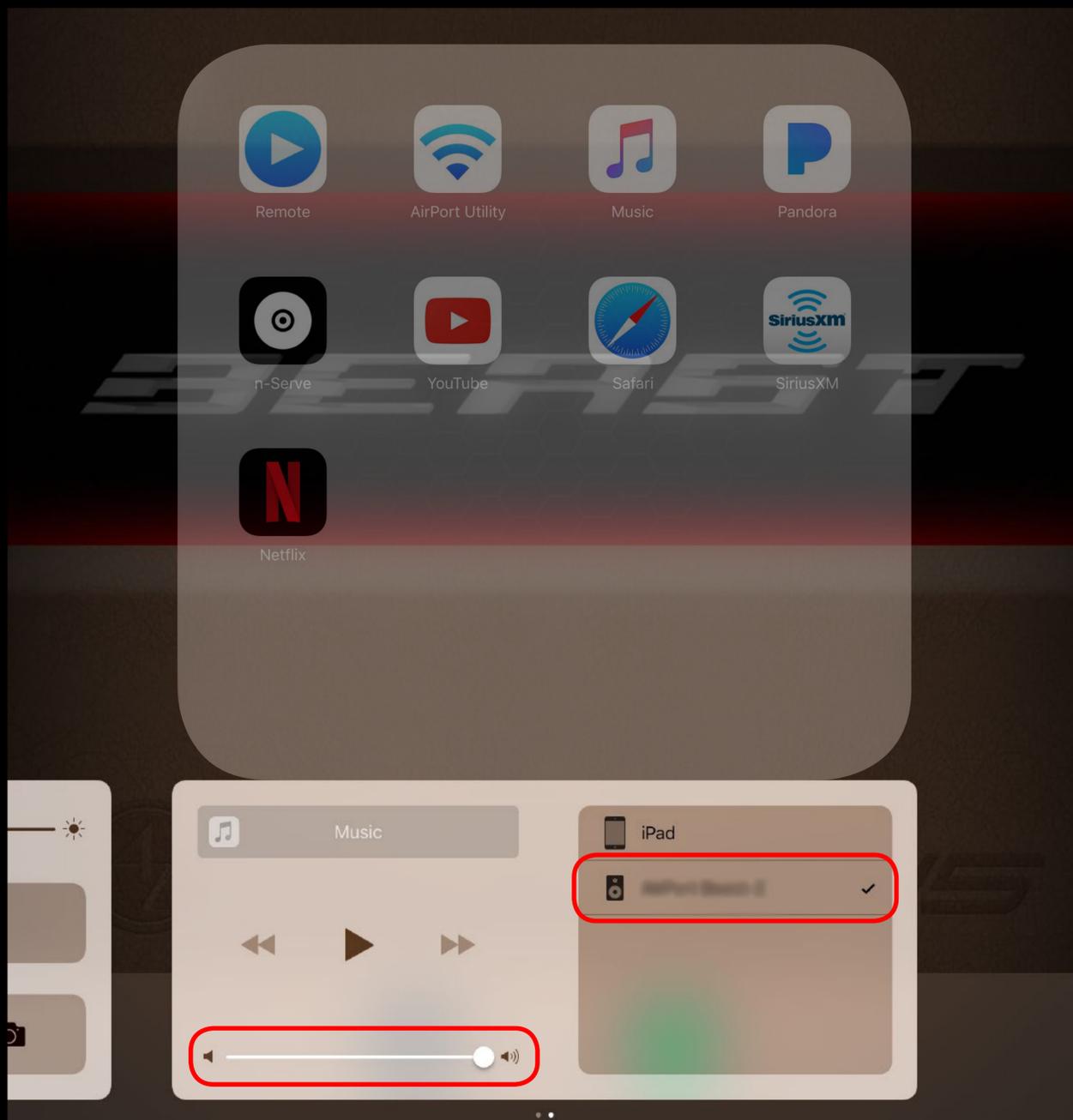


Airport

Listening to media through AirPort:

To listen to other digital media from apps such as iTunes, Pandora, SiriusXM, Youtube, etc., you must go to the Command Center on the iOS device you are using and select *Airport Beast* to stream to. Make sure your volume is up all the way in Command Center.

You must also make sure you have AirPort selected as your media source in the *naim* app.





Escalade radio

Listening to Escalade Radio:

You can listen to media from the stock Cadillac Escalade radio over the E45 Audio System.

Make sure you have Escalade radio selected as your media source in the *naim* app.

There is a remote located behind the 3rd row video screen that can be used to control the Cadillac radio system from the rear seating area.



USB/iPod

Listening through USB:

To listen to media on a device through a USB cable, plug the cable in to the MP3 USB port located in the center console of the VIP seats.

Make sure you have USB/iPod selected as your media source in the *naim* app.



naim Unitiserve:

The naim Unitiserve is not a CD player. It is a CD drive that will automatically rip a CD and download it to the *Beast Media Controller* Music Library.

E45 Audio System Troubleshooting Tips:

KEEP YOUR APPS UPDATED!

If you are having trouble playing music through the E45 Audio System, the first thing we ask is that you make sure your device's operating system and media apps are up to date.

Make sure the car is running, the E45 Main Power Knob is turned to "ON", and the "STANDBY" start-up sequence has completed.

Make sure your media devices are connected to the BEAST wi-fi network.

Open the naim app, make sure your device is connected to the BEAST Media Controller, and the correct media input is selected in the naim app.

Make sure the keyed lock-out switch is in the on state.

If the above does not solve the issue, perform a hard reset by turning the system off.

If you are still having problems, contact Matt at Ai Design: 914-779-9000



Driver Controls:

1. Factory Cadillac Escalade Media Console
Controls for Cadillac Radio, Navigation, Phone
2. Driver Volume Control for E45 Audio System
3. Emergency Response System Controls
4. Lock-Out Keys for E45 Audio System & Emergency Response System
Note: To limit access to these systems if the car is sent to a service entity of any kind.
5. On/Off Display for E45 Audio System & Emergency Response System
6. Radar & Laser On/Off Switch
7. Radar & Laser Controls
8. Radar & Laser Display

Service Guide:

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**Additional reference material can be found in the
TECHNICAL MANUALS folder on this iPad.**

**If you have any questions about servicing this vehicle,
contact Ai Design at 914-779-9000.**

Jumping the Main Battery:

There are two methods to jump starting the Cadillac Escalade's main battery.

First, you can attempt to jump the main battery with the auxiliary battery for E45.

1. Press and hold the button located to the left of the steering column. When pressed down, this button momentarily connects the two batteries which are otherwise completely separate.
2. Wait a few seconds, then attempt to start the engine with the push-button ignition switch.
3. Continue to hold the momentary battery connect button down for a few seconds after the engine starts before you release.

If you cannot jump the car via the auxiliary battery, there is an Anderson Plug underneath the hood next to the factory battery to jump the car.

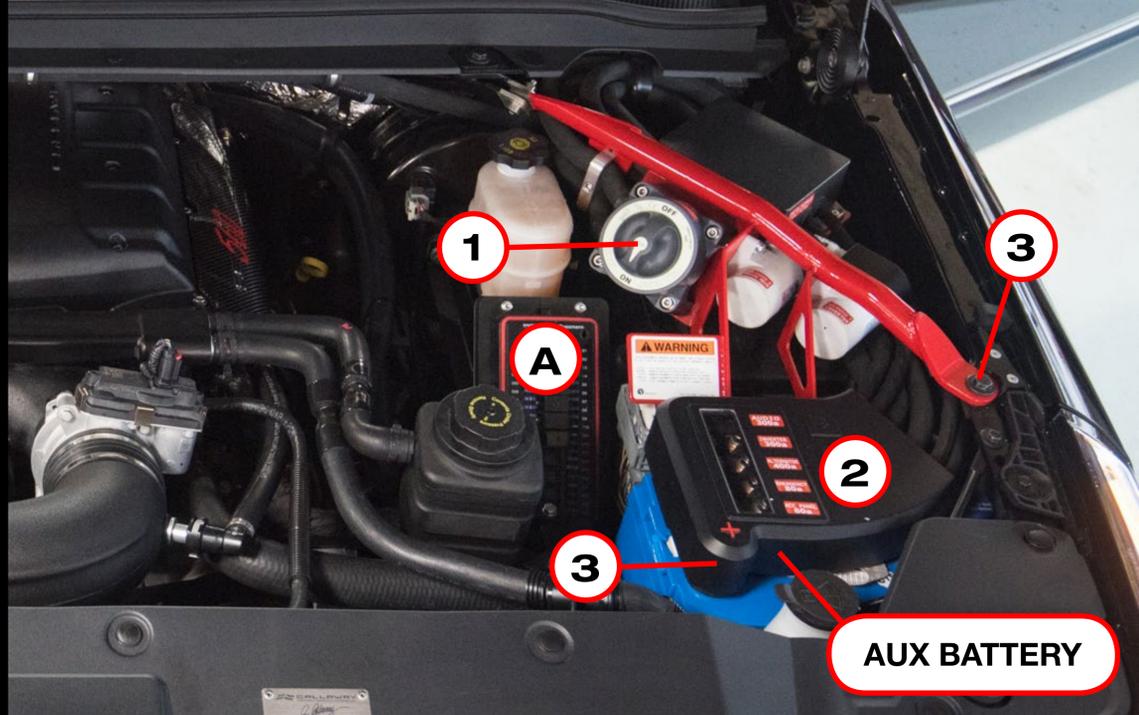
A set of jumper cables are located in the driver's center console.



Auxiliary Power Assembly Access:

The Auxiliary Power Distribution Assembly was designed to easily be moved out of the way so normal factory service can be done on the Cadillac Escalade. Follow these steps to move the assembly out of the way:

1. MAKE SURE THE MAIN POWER KNOB IS TURNED TO OFF!
2. Remove the cable terminal cover from the secondary battery. It is simply held down by magnets.
3. Remove 2 bolts:
 - 1 at the end of the assembly arm
 - 1 threaded in to the battery's positive terminal
4. Carefully lift up on the assembly arm and raise the entire system up and out of the way.



A. E45 Fuse Panel:

The Auxiliary Battery Accessory Fuse Panel is located next to the Auxiliary Power Assembly.

To the right is a legend for the fuse panel, also found on the inside of the fuse cover.



There are spare fuses and pre-amplifier tubes located in the storage compartment underneath the driver's side 2nd row VIP seat.



Automotive Intellect Design, Inc
64 Marbledale Rd
Tuckahoe NY 10707
914-779-9888

DESIGN-FUSE LEGEND

- D1 - **OEM RAP tap** (output to D3 diode anode) **3amp**
 - D2 - **OEM IGN tap** (output to D4 diode anode & R5 #85) **3amp**
 - D3 - **DIODE:** (isolates OEM RAP tap, input from D1, output to R1 #85)
 - D4 - **DIODE:** (isolates OEM IGN tap, input from D2, output to R1)
 - D5 - **OEM STARTER tap** (output to R3 #85) & **Alt Excite 3amp**
 - D6 - **OEM COURTESY tap** (output to R4 #85) **3amp**
 - D7 - **Solenoid #1/Audio/Trigger #1** (in from R1 #87, out to S#1) **3amp**
 - D8 - **Solenoid #2/Inverter/Trigger #1** (in from R1 #87, out D10) **3amp**
 - D9 - **Solenoid #2/Inverter/Trigger #2** (in AUX Bat, out D11) **3amp**
 - D10 - **DIODE:** (input from D8, output to solenoid #2 coil)
 - D11 - **DIODE:** (input from D9, output to AC-Inverter-Relay common)
 - D12 - **Audio PWR ON/OFF Switch COM. Term** (in from R1 #87) **3amp**
 - D13 - **Audio PWR ON/OFF Switch N.O. Terminal** (out to R2 #85) **3amp**
 - D14 - **Left VIP Seat** (input from R1 #87) **25amp**
 - D15 - **Right VIP Seat** (input from R1 #87) **25amp**
 - D16 - **Emergency Lighting** (input from R1 #87) **3amp**
 - D17 - **Radar/Laser Detector** (input from R1 #87) **2amp**
 - D18 - **Auxiliary USB Ports** (input from R1 #87) **7.5amp**
 - D19 - **JL Audio Ignition Input** (input from R1 #87) **3amp**
 - D20 - **Rear Vanity Mirror/Read** (input from R1 #87) **5amp**
 - D21 - **Audio Amp Zone Switch Array Feed** (in from R2 #87) **3amp**
 - D22 - **Panel Lights, Control Panel** (input from R2 #87) **10amp**
 - D23 - **Panel Lights, Rear Logos** (input from R2 #87) **5amp**
 - D24 - **AUX Volume Cont. Illumination** (input from R2 #87) **3amp**
-
- D25 - **AC-1 Preamp - Octave/Marchand** (input from R2 #87) **3amp**
 - D26 - **AC -3&4 AirPort/Pepwave/Network** (input from R2 #87) **3amp**
 - D27 - **AC-2 Network Controller - NAIM** (input from R2 #87) **3amp**
-
- D28 - **Kramer Toslink-to-SPiDF** (input from R2 #87) **3amp**
 - D29 - **Control Panel Cooling Fan** (input from R5 #87) **5amp**
 - D30 - **Solar Charger Output #1** (input to OEM battery tap) **5amp**
 - D31 - **Solar Charger Output #2** (input to D31, D32) **5amp**
 - D32 - **SHUNT** (as a 30amp fuse)
 - D33 - **Low Voltage Trigger Module** (input from D31, to iPads D36) **5amp**
 - D34 - **DIODE:** (input from AC-Inverter-Relay N.O., output to D36)
 - D35 - **DIODE:** (input from R1 #87/RAP-IGN, out to iPad Array D36)
 - D36 - **iPad Array** (input from D33, D34, D35) **10amp**
 - D37 - **Rear Vanity Mirrors/Courtesy** (input from R4 #87) **5amp**
 - D38 - **Rear Cargo Lighting** (input from R4 #87) **15amp**
 - D39 - **JL Audio Battery-Input** (AUX battery input) **3amp**
 - D40 - **Auto-Eject Mechanism-Solenoid Release** (from R3, #87) **20amp**
- R1 - **RAP-IGN Relay**
 - R2 - **MSI Relay**
 - R3 - **STARTER Relay**
 - R4 - **COURTESY Relay**
 - R5 - **IGNITION Relay**
 - R6 - **RAP-IGN SEAT Relay**
 - R7, R8, R9, R10 NOT USED

**This Full Panel
Protected By
Aux Battery
Main Fuse #1
60-AMP**

E45 Charging Port with Auto Eject:

If you plan on storing the vehicle for a long period of time, we recommend plugging the vehicle in to keep the E45 Auxiliary Battery fully charged.

There is a pink power cable located in the storage compartment underneath the passenger's side 2nd row VIP seat.

The charge port for the E45 Auxiliary Battery is located to the right of the license plate on the tailgate.

This charge port has an auto-eject feature, so if you forget to unplug the cable, it will automatically eject the plug when the car is started.



Controller Access Panel:

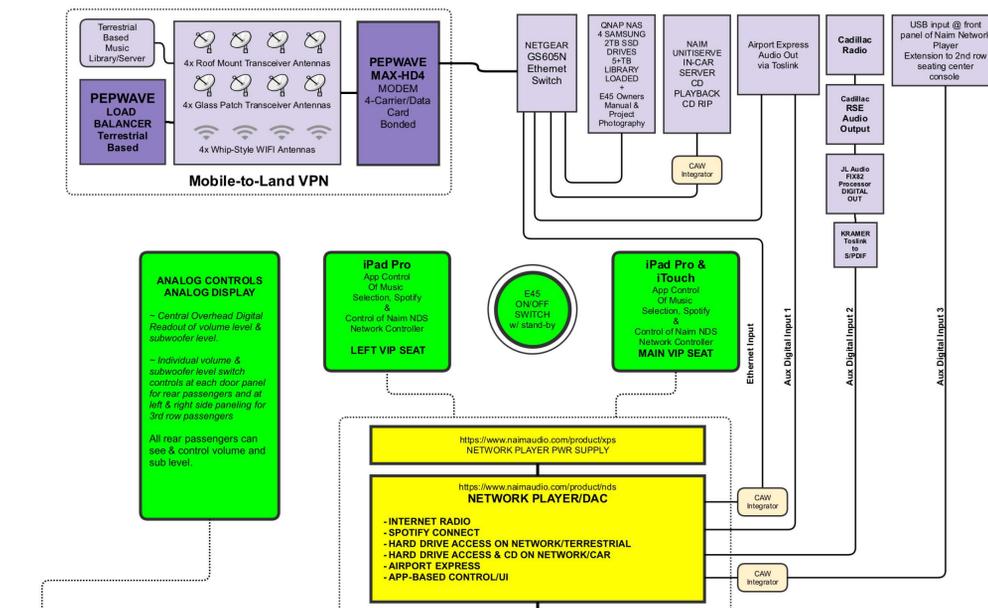
There is a removable panel on the front passenger side center console that is simply held on with magnets. Remove this panel to access these controls:



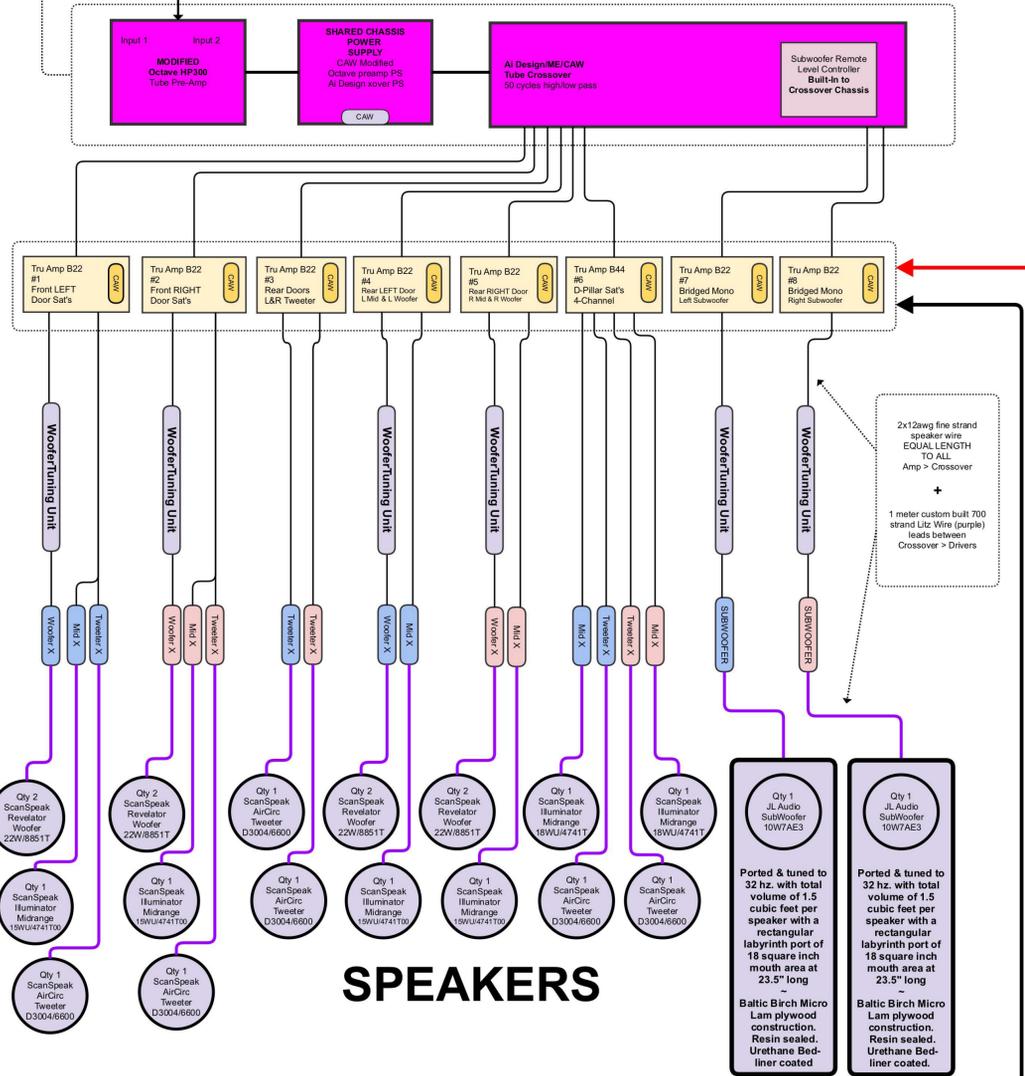
1. Inverter Controller
2. Solar Panel Controller
3. Amplifier Cooling Fan Controller
4. Ethernet plug to connect to the BEAST network

BEAST Wiring Diagram:

PROJECT E45 NETWORK, SOURCE & CONTROL

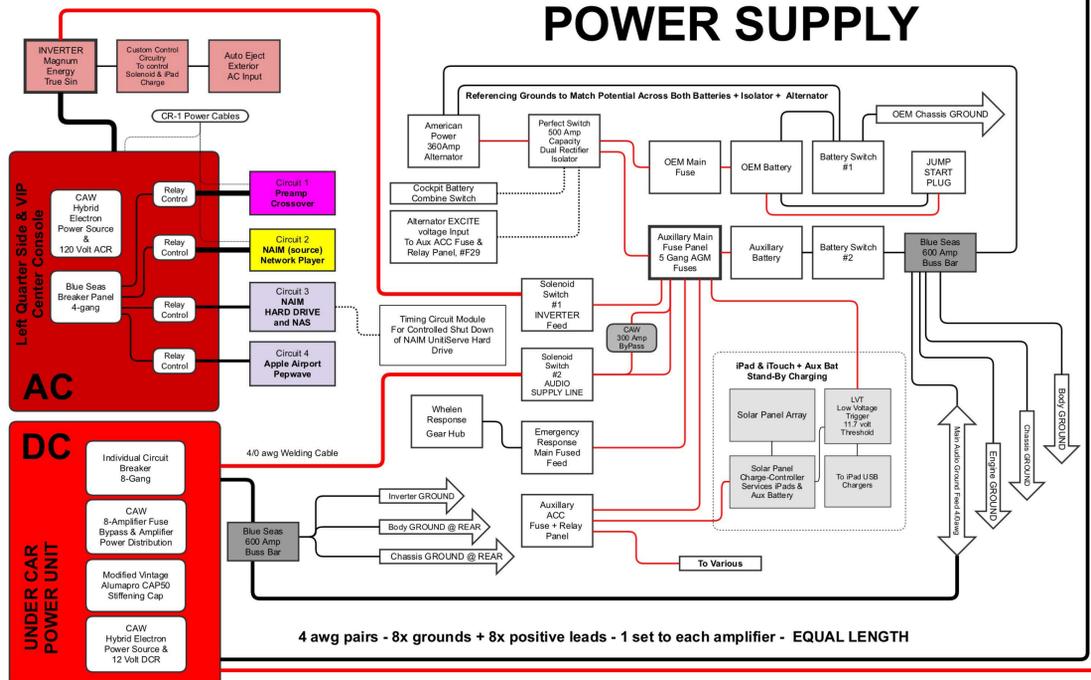


PRE/POWER AMPLIFICATION



SPEAKERS

POWER SUPPLY



4 awg pairs - 8x grounds + 8x positive leads - 1 set to each amplifier - EQUAL LENGTH

Network Configuration:

BEAST 1

Dealer#

===== FTP-Info =====

SSL/TLS is forced ON, you must use TLS to connect

Username:

Password:

===== Wifi =====

Wifi

Wifi2

===== Passwords =====

Device

User Name

Password

===== IP Address =====

IP Address

Device

Name

===== Shared Folder =====

Share Name

Description

User Name

Password

===== Serial Numbers =====

Server Name

Model

Firmware

BEAST 2

Dealer#

===== FTP-Info =====

SSL/TLS is forced ON, you must use TLS to connect

Username:

Password:

===== Wifi =====

Wifi

Wifi2

===== Passwords =====

Device

User Name

Password

===== IP Address =====

IP Address

Device

Name

===== Shared Folder =====

Share Name

Description

User Name

Password

===== Serial Numbers =====

Server Name

Model

Firmware

E45 Default Equipment Settings:

E45

Important measurements and values regarding the audio system's signal path.

Amplifier panel switch settings:

- on all 8 amplifiers, the switch marked 'Preamp' should be turned **OFF**
- on the 2 subwoofer amplifiers, the switch marked 'Level Switch' should be set to **1+2**
- on the 5 two channel stereo amplifiers the 'Level Switch' should be set to **1:2**
- on the single 4-channel amplifier there are 2 'Level Switch' controls. Respectively they should be set to **1:2 & 3:4**

Naim NDS Media Controller:

- The output of this device has been padded-down via a resistor on the left and right RCA outputs, respectively. NAIM UK approved and recommended this.
- This resistor is installed inside the case.
- This resistor is necessary to prevent clipping at the Octave pre-Amplifier's input section.
- We used a matched pair of 16.5k ohm, 1%, .6watt, through hole, axial, metal film resistors
- Vishay BC Components part# MRS2500C1652FCT00

Ai Design Tube Crossover:

- The crossover's Load Balance Resistor, on the Left & Right High-Side ONLY, has been fitted with a custom value. 1 per left, 1 per right.
- This value is critical and must be correct as impedance matching, when going from Tube to Solid State, is a sensitive matter.
- We used a 15K ohm, 5watt, through-hole, wire-wound, axial, RS-series resistor
- Vishay BC Components part# RS00515K00FE12

Output Measurements:

- When performing tests on the High Pass side we utilized a 1khz, -5db sine wave track with the volume set to max (950) on the Octave pre-amplifier
- When performing tests on the Low Pass side we utilized a 40hz, -10db sine wave track with the volume set to max (950) on the Octave pre-amplifier
- Output of NAIM NDS Media Controller (THE main source) = **+/- 0.89VAC**
- Output of Octave Pre-Amplifier = **+/- 8.0VAC** with the Octave Gain Dial set to **MEDIUM**
- Output of Ai Design Crossover High Side = **+/- 12.4 - 12.7VAC** with High Pass Dial set **+4** clicks
- Output of Ai Design Crossover Low Side = **+/- 6.7VAC** with Low Pass Dial set **+5** clicks
- Output of Amplifiers (No Load & Speakers Disconnected)
 - All 2 channel amplifiers = **+/- 34.2VAC**
 - All Mono amplifiers = **+/- 68.4VAC**
 - The single 4-Channel amplifier = **+/- 27.8VAC**

Approximate Gain Dial Positions:

- Purely a visual indication and only to be used as reference:
- 2 channel amplifiers approximately at 11:00
- Mono amplifiers approximately at 11:00
- 4 channel amplifier, both adjustments set to approximately 10:00
- EXCEPTION: The 1 gain adjustment we played around with most when tuning was the rear door midrange channels. These are set to approximately 10:00, whereas the other gains amongst the 2-channel-amplifiers are set to 11:00. For reference, these channels are on Amplifier's #4 & #5, channel #1 of each.
- NOTE: Amplifier gain adjustment is the ONLY way to tune the audio system. There are no other adjustments, no EQ, no DSP, etc. This is it. That said, if further tuning were desired, tiny movements of the gains should be incrementally made BUT mark the starting point first! Less is more.
- NOTE: If more sub bass were desired, there is likely quite a bit more gain one could add to increase the output level safely.

E45 Inverter/Charger Setup Menu Navigation:

MAGNUM

E N E R G Y

3.0 Setup



1. Press the **SETUP** menu button.

Bottom line shows a menu heading.

2. Turn the **SELECT** knob to the desired menu heading.



When the bottom line shows the desired menu heading:

3. Press the **SELECT** knob.



Top line shows menu item.
Bottom line shows current setting.*

*[If this setting is correct, rotate the **SELECT** knob to continue to the next menu item.]

4. Press the **SELECT** knob to change the desired setting.



Rotate the **SELECT** knob to the desired setting.
When the bottom line shows the desired setting:

5. Press the **SELECT** knob to save this setting.

E45 Default Power Inverter/Charger Settings:

Setup:



02 Invert Setup

- 02A - Search Watts
 - └─ Off
- 02B - LBCO
 - └─ 11.5
- 02C - AC In Time
 - └─ N/A
- 02D - AC In VDC
 - └─ N/A
- 02E - AC In SOC
 - └─ 80% - 100%
- 02F - Power Up
 - └─ Always Off

03 Charger Setup

- 03A - AC Input
 - └─ 10A
- 03B - VAC Dropout
 - └─ 80V
- 03C - Batt Type
 - └─ AGM-2
- 03D - Absorb Time
 - └─ 1.0 Hrs
- 03E - Max Charge
 - └─ Rate = 80%
- 03F - Max Charge
 - └─ Time = 5 Hrs
- 03G - Final Charge
 - └─ Multi
- 03H - EQ Reminder
 - └─ Off

These settings are essential for proper battery charging when E45 is plugged in to house power.