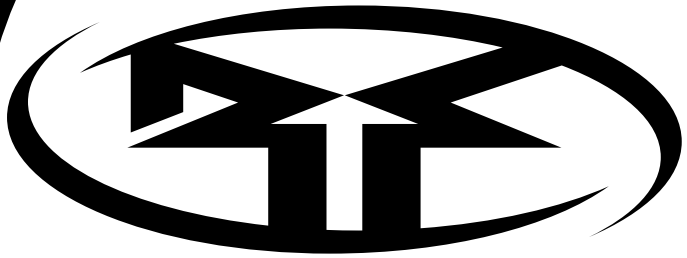




RP9314  
RP9316  
RP9317

Installation &  
Operation



***AERO*PORT**

***Porting  
Tube***

## **INTRODUCTION**

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Thank you for purchasing the Rockford Fosgate **Connecting Punch AEROPORT** accessory. The **AEROPORT** porting tube is designed for non-turbulence airflow at entrance and exit of tube. This gives your box increased airflow through the tube, providing less distortion and richer sound.

For maximum performance we recommend you have your new Rockford Fosgate product installed by an Authorized Rockford Fosgate Dealer, as we provide specialized training through Rockford Technical Training Institute (RTTI). Please read your warranty and retain your receipt and original carton for possible future use.

Great product and competent installations are only a piece of the puzzle when it comes to your system. Make sure that your installer is using 100% authentic installation accessories from Connecting Punch in your installation. **Connecting Punch** has everything from RCA cables and speaker wire, to Power line and battery connectors. Insist on it! After all, your new system deserves nothing but the best.

To add the finishing touch to your new Rockford Fosgate image order your Rockford accessories, which include everything from T-shirts and jackets to hats and sunglasses.

To get a free brochure on Rockford Fosgate products and Rockford accessories, in the U.S. call 480-967-3565 or FAX 480-967-8132.

For all other countries, call +001-480-967-3565 or FAX +001-480-967-8132.

### **PRACTICE SAFE SOUND™**

Continuous exposure to sound pressure levels over 100dB may cause permanent hearing loss. High powered auto sound systems may produce sound pressure levels well over 130dB. Use common sense and practice safe sound.

If, after reading your manual, you still have questions regarding this product, we recommend that you see your Rockford Fosgate dealer. If you need further assistance, you can call us direct at 1-800-669-9899. Have your model number and date of purchase available when you call.

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**NOTE:** Review each section for more detailed information.

Visit our web site for the latest information on all Rockford products.

**[www.rockfordfosgate.com](http://www.rockfordfosgate.com)**

**⚠ CAUTION**

This symbol with “CAUTION” is intended to alert the user to the presence of important instructions. Failure to heed the instructions can result in injury or unit damage.

**⚠ CAUTION:** To prevent injury and damage to the unit, please read and follow the instructions in this manual. We want you to have enjoyment from this system, not a headache.

**⚠ CAUTION** If you feel unsure about installing this system yourself, have it installed by a qualified Rockford Fosgate technician.

**CONTENTS OF CARTON**

**RP9314**

- One 3" diameter tube 12" long
- One Inside Aeroport end flange
- One Outside Aeroport end flange

**RP9316**

- One 4" diameter tube 12" long
- One Inside Aeroport end flange
- One Outside Aeroport end flange

**RP9317**

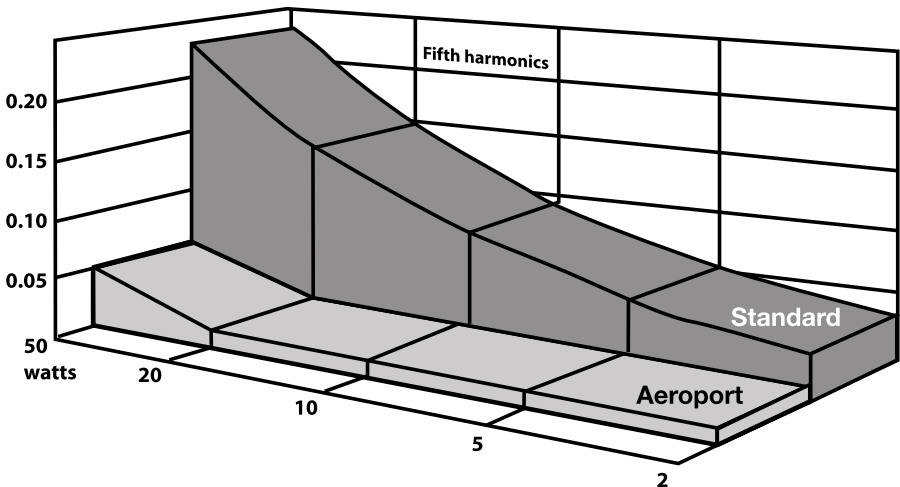
- One Inside Aeroport end flange
- One Outside Aeroport end flange
- Tube not supplied**, use 6" diameter PVC tube

**DESIGN FEATURES**

A major design challenge when building a vented speaker enclosure is the turbulence generated by the air moving through the port. The air movement causes harmonic distortion as well as a whistling noise from the port. The Aeroport was designed to reduce this effect. Inspired by the bell on a brass instrument, the flanges on the ends of the Aeroport reduce the air friction and distortion inherent in the operation of a conventional tube.

The Harmonics graph illustrates the advantage of using the Aeroport over a conventional tube. The human ear can sense 0.1% distortion. A standard tube can reach that amount with only 10 watts of input where as the Aeroport reaches only 0.05% distortion with 50 Watts of input. This allows more input power with less distortion or use a smaller diameter Aeroport in place of a standard tube.

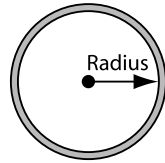
If using a computer aided speaker design program such as Term-Pro, port velocities of up to 15% can be alleviated.



**CALCULATING PORT LENGTH**

After the enclosure has been designed, the following formula may be useful when calculating the port length:

$$L_v = \left( \frac{8466.4 \times R^2}{V_b \times F_b^2} \right) - (1.463 \times R)$$



**Radius = R**  
R = 1/2 of the inside diameter of port tube

RP9314: R=1.45

RP9316: R=2.03

L<sub>v</sub> = port length in inches

V<sub>b</sub> = volume of box in cubic feet (less the speaker displacement)

F<sub>b</sub> = tuning frequency (in hertz (Hz))

R = radius of port (1/2 of the inside diameter (ID) of port tube)

**Example:**

Use this following example for calculating the port length.

The box volume is 2.0 cubic feet (less the speaker displacement).

You want the tuning frequency to be 40Hz.

You're using the FP9316 for your port, which has a inside radius of 2.03.

**Follow the progression of the calculation to see how the answer was obtained:**

$$L_v = \left( \frac{8466.4 \times 2.03^2}{2.0 \times 40^2} \right) - (1.463 \times 2.03)$$

$$L_v = \left( \frac{8466.4 \times 4.12}{2.0 \times 1600} \right) - (1.463 \times 2.03)$$

$$L_v = \left( \frac{34881.57}{3200} \right) - 2.97$$

$$L_v = 10.90 - 2.97$$

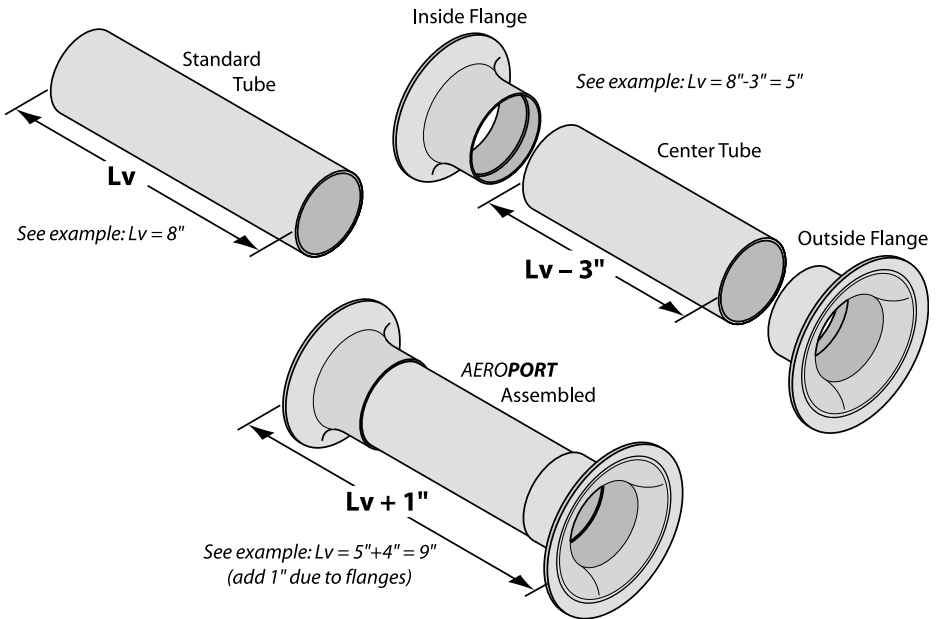
$$L_v = 7.93$$

**NOTE:**  
***LV equals the full length of a standard tube. Subtract 3" from this number for the cut length of the center tube for the Aeroport assembly.***

**You can round up this number to make cutting the tube easier, so L<sub>v</sub> = 8".**

When cutting the Aeroport center tube, the length cut will be 3" shorter than calculated. This is required for the height of the flanges when assembled. When the end flanges are affixed, each end extends the tube two (2) inches (adding one (1) inch to the total length).

**Example:** If the determined port length is 8", cut the center tube to 5". The Aeroport when assembled, center tube with flanges attached, should measure 9" (the extra 1/2" on each end contributes to harmonics and not the port length (L<sub>v</sub>) of the tube).



**NOTE:** Do not glue the pieces together. You will assemble the Aeroport when installing it into the enclosure.

## INSTALLATION

### INSTALLATION CONSIDERATIONS

The following is a list of tools needed for installation:

Felt-tip pen or center punch  
 Hand held drill w/assorted bits  
 Router with 1/2" round-over bit

Circle jig for router  
 Silicone caulk  
 Quick drying epoxy cement

**CAUTION:** To prevent injury, follow all safety precautions associated with the tools being used.

**CAUTION:** To prevent injury, wear safety glasses, gloves and a dust mask when cutting or routing any type of wood.

## INSTALLATION

Before cutting any holes in the enclosure first determine the placement of the Aeroport. To maintain proper tuning and noise free operation, the Aeroport should be positioned to allow the flange at least one port diameter clearance from the back and all enclosure walls.

**NOTE:** Best results will be derived by placing the woofer and port on the same side of the enclosure.

**Example:** You're using a RP9316 which has a 4" diameter port. Keep the Aeroport tube 4" from the back of the enclosure and 4" from all enclosure walls.

**NOTE:** Ensure the woofer is removed from the enclosure before cutting or drilling any holes to mount the port.

### Cutting Hole

Using a router with a wood cutting bit and a circle jig, cut the following diameter hole;

RP9314 - 3" Aeroport, cut a 4-5/16" diameter hole

RP9316 - 4" Aeroport, cut a 5-9/16" diameter hole

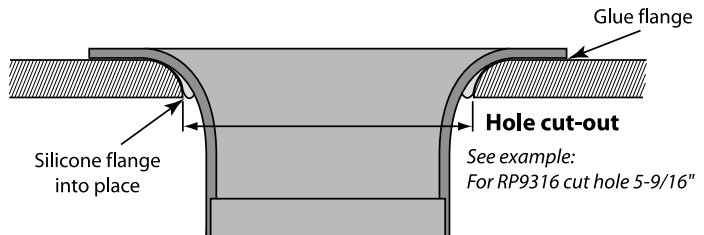
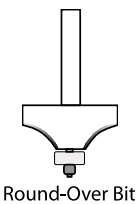
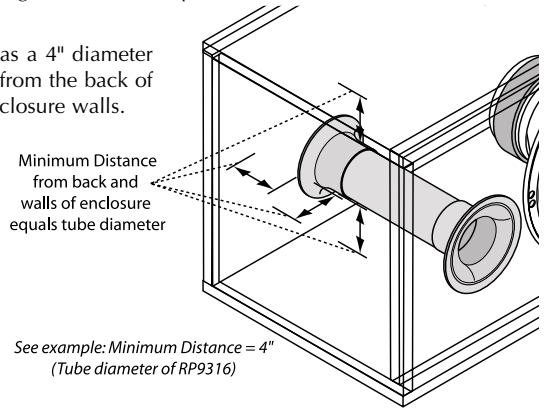
RP9317 - 6" Aeroport, cut a 9" diameter hole

After the holes have been cut, use a 1/2" round-over router bit to accommodate the curve needed for the end flange.

### Mounting Aeroport

1. Apply a quick drying epoxy cement to the mounting surface and mount the Aeroport outside flange to the enclosure.
2. Use silicone caulk or fiberglass compound on the inside of the enclosure to secure the flange to the wood.
3. Glue the inside flange to the center tube, use a good, quick drying epoxy cement. Carefully apply a 1/2" bead on the end of the center tube then twist the flange piece on until seated properly.
4. By going thru the hole for the woofer, glue the tube with flange into the outside flange. Carefully apply a 1/2" bead on the end of the center tube then twist the tube piece in until seated properly.

**NOTE:** Ensure any excess cement has been cleaned out from the inside of the Aeroport tube.



Rockford Corporation offers a limited warranty on Rockford Fosgate products on the following terms:

### ***Warranty***

The Aeroport is nearly indestructible and will provide years of service if installed and used in accordance with the instructions in this manual. If this product should prove to be defective due to a manufacturing defect within a period of ninety (90) days from the date of purchase, contact your Authorized Rockford Fosgate Dealer or Rockford Corporation Customer Service Department at 1-800-669-9899 for replacement instructions.



**Rockford Fosgate**<sup>®</sup>  
*CONNECTING PUNCH*

Installation assistance available at:

**RFTECH**

[www.rockfordfosgate.com/rftech](http://www.rockfordfosgate.com/rftech)

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