

RFA-14X

RFR-14X

power

 **Rockford Fosgate**
car audio FOR  **fanatics**

Tweeters

operation & installation

 **the
punch**®

Dear Customer,

Congratulations on your purchase of the world's finest brand of car audio speakers. At Rockford Fosgate we are fanatics about musical reproduction at its best, and we are pleased you chose our product. Through years of engineering expertise, hand craftsmanship and critical testing procedures, we have created a wide range of products that reproduce music with all the clarity and richness you deserve.

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 wearables, which include everything from T-shirts and jackets to hats and sunglasses.

To get a free brochure on Rockford Fosgate products and Rockford wearables, in the U.S. call 602-967-3565 or FAX 602-967-8132. For all other countries, call +001-602-967-3565 or FAX +001-602-967-8132.

PRACTICE SAFE SOUND™

CONTINUOUS EXPOSURE TO SOUND PRESSURE LEVELS OVER 100dB MAY CAUSE PERMANENT HEARING LOSS. HIGH POWERED AUTOSOUND 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 1-800-795-2385. Be sure to have your serial number, model number and date of purchase available when you call.

The serial number can be found on the outside of the box. Please record it in the space provided below as your permanent record. This will serve as verification of your factory warranty and may become useful in recovering your speaker if it is ever stolen.

Serial Number: _____

Model Number: _____

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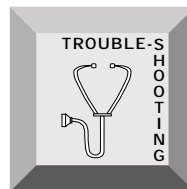
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GETTING STARTED

Welcome to Rockford Fosgate! This manual is designed to provide information for the owner, salesperson and installer. For those of you who want quick information on how to install this product, please turn to the **Installation Section** of this manual or refer to the icons listed below. Other information can be located by using the Table of Contents. We, at Rockford Fosgate, have worked very hard to make sure all the information in this manual is current. But, as we are constantly finding new ways to improve our product, this information is subject to change without notice.



Sections marked **INSTALLATION** include "slam dunk" assembly and wiring directions



Sections marked **TROUBLESHOOTING** include recommendations for curing installation problems

PLEASE READ THE FOLLOWING INSTRUCTIONS FOR INSTALLATION OF THIS PRODUCT, FAILURE TO FOLLOW THE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY TO YOURSELF OR TO THE VEHICLE.

INTRODUCTION

The *Audiophile* (RFA-14x) and Power (RFR-14x) tweeters incorporate advanced features for use in high performance systems. The *Audiophile* tweeter utilizes a silk dome for high quality high frequency response while the Power tweeter implements a titanium dome to withstand high powered conditions. Custom high frequency dispersion is achievable with the tweeter's swivel mount design and reliability is ensured by a protection circuit designed into the supplied crossover.

PACKAGE CONTENTS

RFA-14x

Installation & Operation Manual

- (2) 20mm Tweeters
- (2) TX-4183 Crossovers
- (2) Surface Mount Cups
- (2) Surface Mount Baseplates
- (2) Flush Mount Cups
- (2) Flush Mount Baseplates
- (2) Mounting Brackets
- (2) 6' 24 gauge Speaker Wire
- (8) #8 x .75 Phillips Mounting Screws
- (4) 8-32 x .50 Hex Head Bolts
- (4) 8-32 Nuts

RFR-14x

Installation & Operation Manual

- (2) 25mm Tweeters
- (2) TX-4183 Crossovers
- (2) Surface Mount Cups
- (2) Surface Mount Baseplates
- (2) Flush Mount Cups
- (2) Flush Mount Baseplates
- (2) Mounting Brackets
- (2) 6' 24 gauge Speaker Wire
- (8) #8 x .75 Phillips Mounting Screws
- (4) 8-32 x .50 Hex Head Bolts
- (4) 8-32 Nuts

TECHNICAL DESIGN FEATURES

Tweeter Features

◆ Silk Dome (RFA)

The silk dome used in the *Audiophile* tweeter allows linear movement of the diaphragm and voice coil assembly. The linear movement or “symmetrical control” of the assembly provides smooth and well extended high frequency response.

THE RESULT: Smooth response for “audiophile” sound quality.

◆ Titanium Dome (RFR)

The titanium dome used in the Power tweeter allows the voice coil assembly to efficiently dissipate heat. This feature allows the tweeter to be driven at higher operating levels without sacrificing sound quality.

THE RESULT: High power handling with excellent response.

◆ Neodymium Magnets

The high ionic compound of neodymium enables a smaller tweeter magnet assembly to be used as opposed to the much larger ferrite magnets that are commonly used in speaker manufacturing.

THE RESULT: An efficient magnet which allows smaller tweeter construction.

◆ Magnetic Fluid Cooling

Magnetic fluid is a synthetic liquid consisting of microscopic magnetic particles. The fluid has four times the thermal conductivity as air which makes it an ideal cooling agent. Magnetic fluid is injected into the voice coil gap which helps dissipate heat generated by the voice coil.

THE RESULT: A thermal conductor which allows increased power handling.

◆ Swivel Mount Design

The tweeter is encapsulated in a variable swivel housing. This design allows direct dispersion of the tweeter in order to accommodate various mounting positions. The swivel mount design allows the tweeter to maximize its sonic potential.

THE RESULT: Precise tweeter imaging regardless of mounting position.

Crossover Features

◆ Optical Compression Circuit

The supplied passive crossovers utilize an optical compression circuit for tweeter protection. This protection circuit absorbs the destructive signal caused when the amplifier's output is clipped. This greatly increases the power handling capability and the reliability of the tweeter.

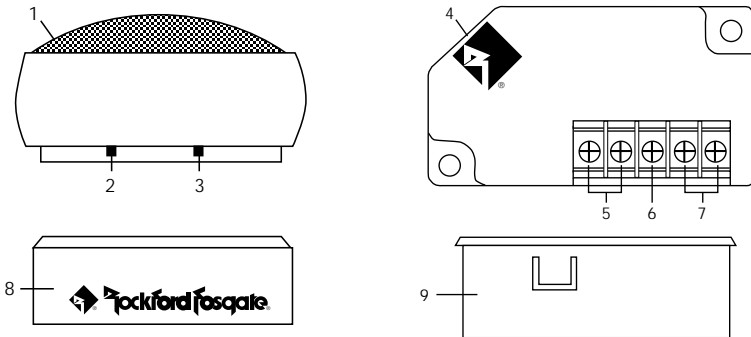
THE RESULT: Increased tweeter reliability under harsh conditions.

◆ Passive Filter Bypass

The TX-4183 utilizes an extra screw terminal on the crossover housing which allows the tweeters audio signal to “bypass” the internal passive filter. This feature allows an external active filter to be used while maintaining optical compression for tweeter reliability.

THE RESULT: System flexibility with constant tweeter protection.

DESIGN FEATURES



1. **Wire Mesh Grille** - The Wire Mesh Grille protects the tweeter diaphragm from foreign objects and curious fingers.
2. **“+” Terminal** - The “+” Terminal indicates the positive/plus terminal of the tweeter. This terminal should be connected to the positive output of the supplied crossover.
3. **“-” Terminal** - The “-” Terminal indicates the negative/minus terminal of the tweeter. This terminal should be connected to the negative output of the supplied crossover.
4. **Variable Mount Logo** - The Diamond “R” logo can be orientated in its housing to accommodate vertical or horizontal crossover mounting.
5. **Input Screw Terminals** - The Input Screw Terminals connect to the outputs of the amplifier. These terminals accept bare wire or 1/4" spade lugs and are gold plated to resist corrosion.
6. **Input Protect Terminal** - The Input Protect Terminal is connected to the output of the amplifier and is used to bypass the internal passive crossover. This configuration allows tweeter protection to be maintained when utilizing an external crossover.
7. **Output Screw Terminals** - The Output Screw Terminals connect to the input of the tweeter. These terminals accept bare wire or 1/4" spade lugs and are gold plated to resist corrosion.
8. **Surface Mount Cup** - This cup is used to “surface mount” the tweeter on a panel.
9. **Flush Mount Cup** - This cup is used to recess or “flush mount” the tweeter into a panel.

INSTALLATION CONSIDERATIONS

The following is a list of tools you will need for the installation of your speakers:

Power Drill with assorted bits
#2 Phillips Screwdriver
Hole Saw (2")

Voltmeter
Tape Measure
5/16" Nut Driver

General

1. For safety, disconnect the negative lead from the battery prior to beginning the installation.
2. Never run wires underneath the vehicle. Running the wires inside the vehicle provides the best protection.
3. Avoid running wires over or through sharp edges. Use rubber or plastic grommets to protect any wires routed through metal.
4. Mount the speakers/crossovers away from electrical sources (other than the amplifier) i.e. power cables, electronic fuel pumps, vehicle computers, and other potential noise sources.
5. Mount the speakers/crossovers away from areas of extreme heat or moisture.

Speakers

1. Make sure there is a flat area large enough for the speaker to mount.
Warning! Failure to do this can cause damage to the speaker if the speaker frame is bent during installation.
 2. Check to see that the location is deep enough for the speaker(s) and the location does not interfere with the normal operation of the vehicle.
 3. When mounting the speaker(s) in the door of a vehicle, make sure the speaker(s) do not interfere with either the door or window operation.
 4. When mounting the speaker(s) on the rear deck of the vehicle, check the operation of the rear hatch or trunk lid. Make sure the torsion bars and other moving parts are not obstructed by the speaker(s) installation.
- Please refer to the **Specifications Section** of this manual for proper mounting diameter and depth for the speaker(s).

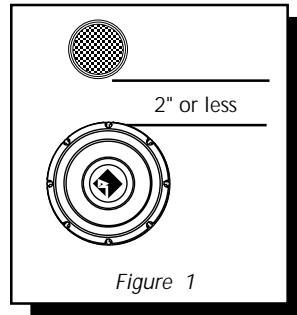
Crossovers

1. Make sure there is a flat area large enough for the crossover to mount.
2. For best results, mount the crossover(s) next to the amplifier for a decorative finish to the installation and provide an easy upgrade (no new wires to run) for a bi-amp Rockford Fosgate system in the future.

MOUNTING LOCATION

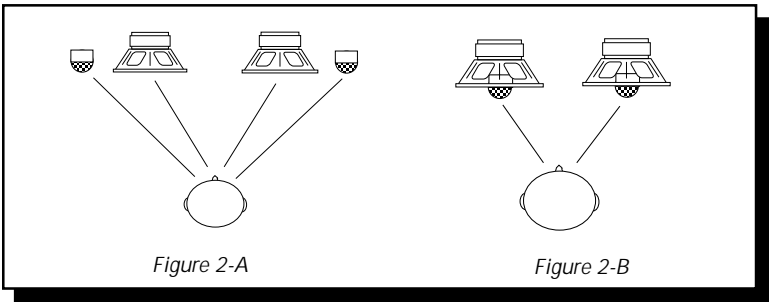
A solid front stage with a good image is one of the most difficult tasks to achieve in a vehicle. No car has the optimum listening environment. This makes proper sound staging very difficult to accomplish. Most speakers tend to be placed where they will fit easily, as opposed to where they can perform the best. The mounting location of your high-frequency speakers will have a great effect on the sound quality of your stereo system.

- Place the speakers where they have a direct path to the listening area.
- For the best integration between the midrange and tweeter, the tweeter should be placed less than 2" from the midrange. (Figure 1)



- * If you cannot place the tweeter less than 2" from the midrange, then place the tweeter more than 7" from the midrange. Placing the tweeter within 2" to 7" from the midrange can cause frequency response problems which will affect the speaker's ability to reproduce the frequency range around the crossover frequency of the system.

- Whenever possible, place the tweeter directly above or below the midrange as this maximizes the imaging (point source) capability of the speakers. (Figure 2)

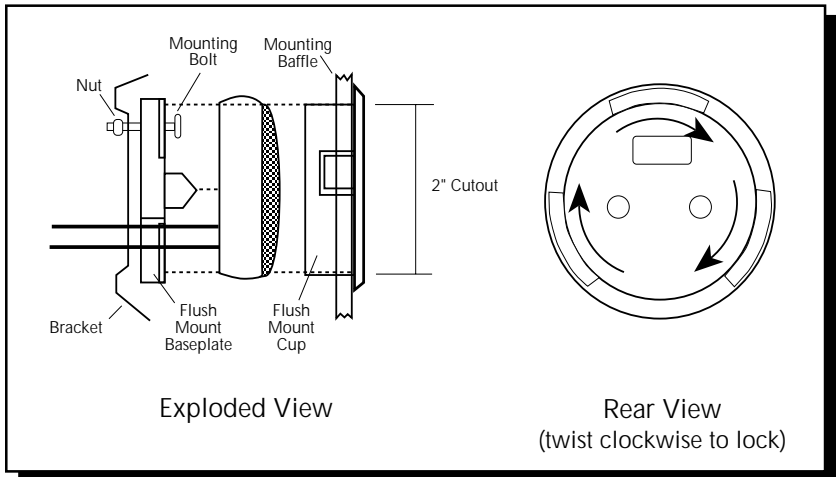


- Sound radiated from a “point source” has the most optimum stereo imaging because the separation of the acoustical centers between the midrange and tweeter for each channel is at the optimum. Figure 2-A describes a horizontal speaker alignment. In a closed environment such as an automobile, horizontal speaker alignment can cause severe amplitude and phase differences which will degrade not only the imaging, but also the frequency response. This is due to the path length differences between the midrange and tweeter. Figure 2-B displays a vertical alignment between the midrange and tweeter. With a vertical alignment, the path length differences between the midrange and tweeter are reduced to a minimum. The result is a negligible difference in path lengths between the midrange and tweeter regardless of the proximity of the listener to the speakers. Mounting the speaker with minimum path length differences will ensure the best staging and imaging possible from your audio system.

INSTALLATION

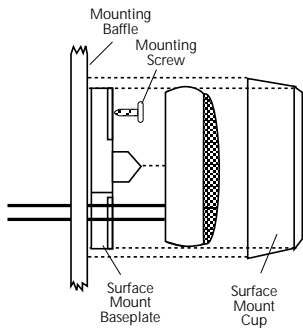


Flush Mount Tweeter

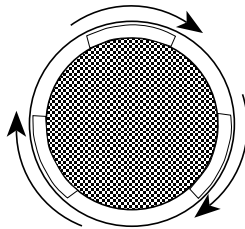




Surface Mount Tweeter (Method #1)



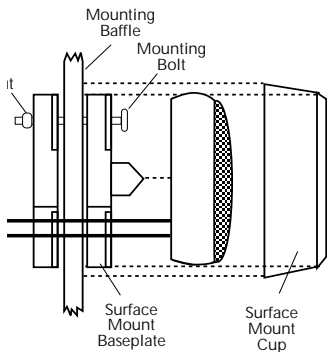
Exploded View



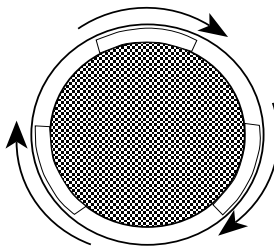
Front View
(twist clockwise to lock)

- Use when mounting tweeter to a solid surface (metal, wood, etc.)

Surface Mount Tweeter (Method #2)

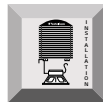


Exploded View

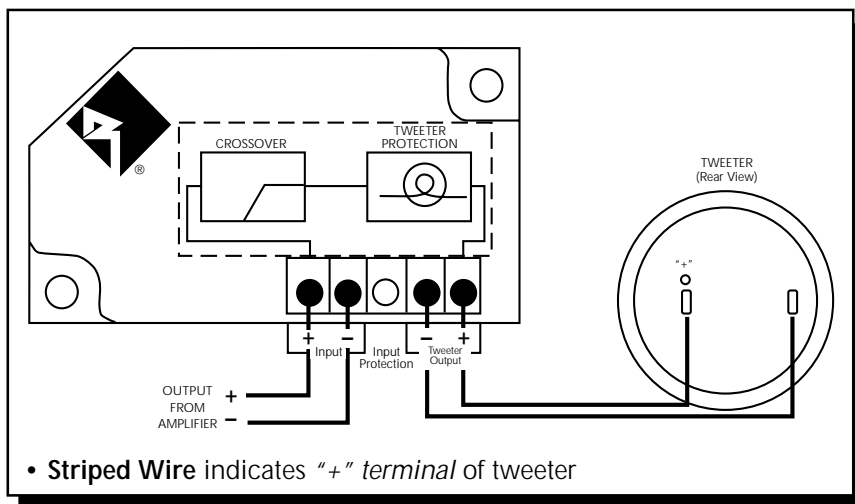


Front View
(twist clockwise to lock)

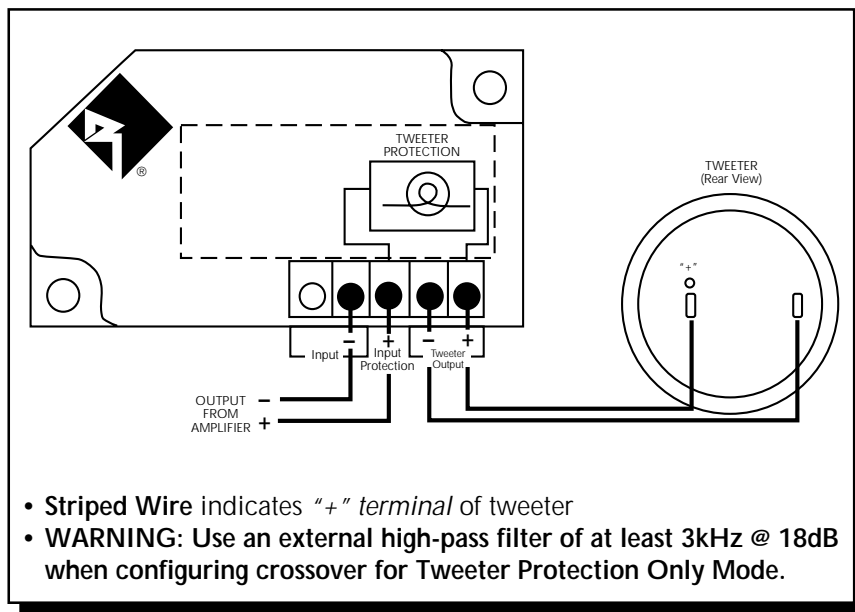
- Use when mounting tweeter to a surface needing reinforcement



Crossover/Tweeter Protection

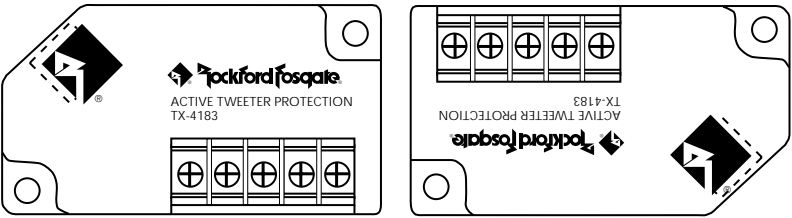


Tweeter Protection Only



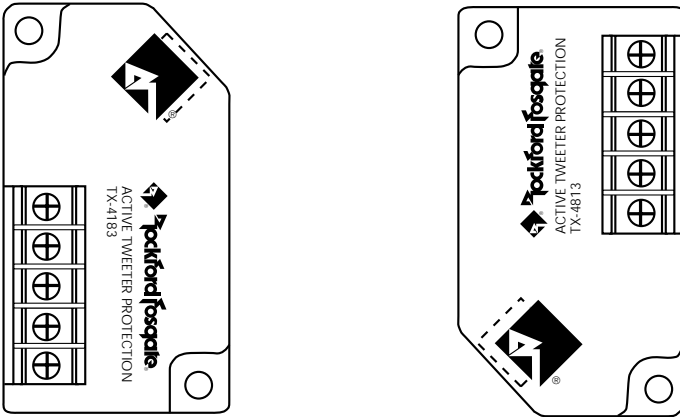


Horizontal Logo Mounting



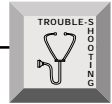
- Configure logo into desired position and snap into place

Vertical Logo Mounting



- Configure logo into desired position and snap into place

TROUBLESHOOTING



Symptom	Diagnosis	Remedy
No sound from speakers	Wires between amplifier, crossover and speakers not connected properly.	Check and repair or replace wiring as needed.
	Amplifier has no output.	Check system with known working amplifier and repair or replace as needed.
	Speaker wires are shorted to each other or to the chassis of the vehicle.	Check for shorts in the wiring with a volt/ohm meter and repair or replace wires as needed
	Speakers are blown.	Check system with known working speaker and repair or replace as needed.
Distorted sound from speakers	Incorrect wiring between crossover and speakers	Check wiring and repair or replace as needed.
	Crossover is in "passive filter bypass" configuration (no external crossover is used)	Check wiring and re-configure as needed.

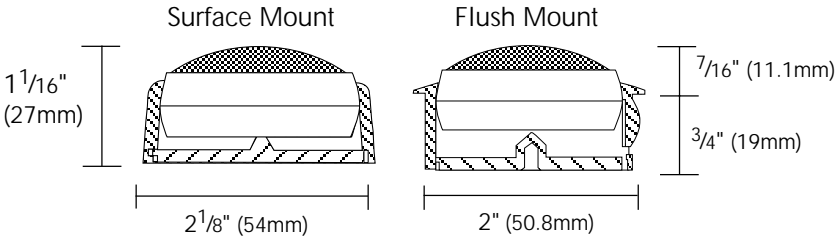


Symptom	Diagnosis	Remedy
Tweeters “burn up” easily	Crossover is in “passive filter bypass” configuration.	Check wiring and re-configure as needed.
	External crossover is not filtering the tweeter properly.	Check configuration of external crossover and re-configure for at least 3kHz @ 18dB/octave
	Excessive clipping from amplifier.	Check gain settings on amplifier and readjust as needed.
	Equalizer in system (if available) has excessive boost in the high frequency range.	Check settings on equalizer and readjust as needed.
Engine Noise from one or more speakers	Speaker wires shorted to chassis of vehicle.	Check for shorts in the wiring with a volt/ohm meter and repair or replace as needed.
	Speaker wires are routed near radiated noise source. (power cables, vehicle computers, etc.)	Re-route speaker wiring away from noise sources. (Refer to the Installation Considerations section of this manual.)
	Crossover is mounted near radiated noise source. (power cables, vehicle computers, etc.)	Move crossovers away from noise sources. (Refer to the Installation Considerations section of this manual.)

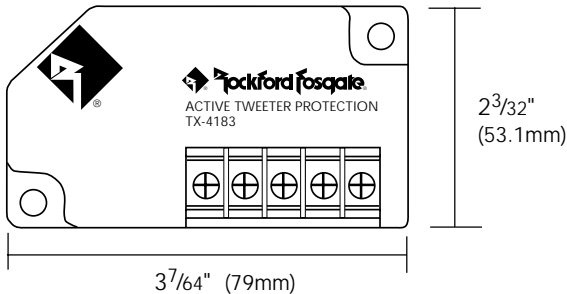
SPECIFICATIONS

Model	RFA-14x	RFR-14x
Freq. Response	3kHz-20kHz	3kHz-20kHz
Power Handling* (RMS)	50 Watts*	100Watts*
Nominal Impedance	4Ω	4Ω
Sensitivity (1W/1M)	92dB	94dB
Fs (Hz)	2000Hz	1200Hz

*Power ratings (PE) is established with recommended filter network.



Model	TX-4183
Crossover Frequency	3kHz @ 4Ω
Crossover Slope	18dB/octave
Protection Circuitry	Optical Compression
Crossover Alignment	Butterworth



LIMITED WARRANTY INFORMATION

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

- **Length of Warranty**

- | | |
|-------------------------|--|
| 1 year on speakers | 30 days on speaker B-stock (receipt required) |
| 3 years on electronics | 90 days on electronic B-stock (receipt required) |
| 2 years on source units | |

- **What is Covered**

This warranty applies only to Rockford Fosgate products sold to consumers by Authorized Rockford Fosgate Dealers in the United States of America or its possessions. Product purchased by consumers from an Authorized Rockford Fosgate Dealer in another country are covered only by that country's Distributor and not by Rockford Corporation.

- **Who is Covered**

This warranty covers only the original purchaser of Rockford product purchased from an Authorized Rockford Fosgate Dealer in the United States. In order to receive service, the purchaser must provide Rockford with a copy of the receipt stating the customer name, dealer name, product purchased and date of purchase.

- **Products found to be defective** during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at Rockford's discretion.

- **What is Not Covered**

1. Damage caused by accident, abuse, improper operations, water, theft
2. Any cost or expense related to the removal or reinstallation of product
3. Service performed by anyone other than Rockford or an Authorized Rockford Fosgate Service Center
4. Any product which has had the serial number defaced, altered, or removed
5. Subsequent damage to other components
6. Any product purchased outside the U.S.
7. Any product not purchased from an Authorized Rockford Fosgate Dealer

- **Limit on Implied Warranties**

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for Rockford Fosgate any other liability in connection with the sale of the product.

- **How to Obtain Service**

Please call 1-800-669-9899 for Rockford Customer Service. You must obtain an RA# (Return Authorization number) to return any product to Rockford Fosgate. You are responsible for shipment of product to Rockford.

Ship to: **Electronics**
Rockford Corporation
Warranty Repair Department
2055 E. 5th Street
Tempe, AZ 85281
RA#: _____

Ship to: **Speakers**
Rockford Acoustic Design
(Receiving-speakers)
609 Myrtle N.W.
Grand Rapids, MI 49504
RA#: _____



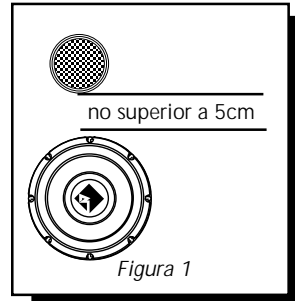
LEA DETENIDAMENTE LAS SIGUIENTES INSTRUCCIONES DE INSTALACIÓN DEL PRODUCTO. EVITARA POSIBLES DAÑOS A VD., AL VEHÍCULO O AL PRODUCTO.

INTRODUCCIÓN

Los tweeters de la serie *Audiophile* (RFA-14x) y *Power* (RFR-14x) tienen una serie de avanzadas características que los hacen muy indicados para montar en equipos de altas prestaciones. Los tweeters de la serie *Audiophile* utilizan una membrana en forma de cúpula de seda que garantiza un suave sonido donde prima por encima de cualquier otra consideración la calidad de sonido. Sin embargo y sin olvidar la legendaria calidad de sonido de Rockford Fosgate, los tweeters de la serie *Power* utilizan una cúpula de titanio, ello les permite manejar con fiabilidad y sin problemas altísimas potencias. Otra característica de nuestros tweeters es que gracias al sistema de anclaje y montaje, que le permiten enfocarlos, Vd. puede modificar la dispersión de los agudos como mejor le convenga. La fiabilidad y resistencia a roturas esta asegurada por un sistema de protección integrado en el crossover que se le suministra con cada tweeter.

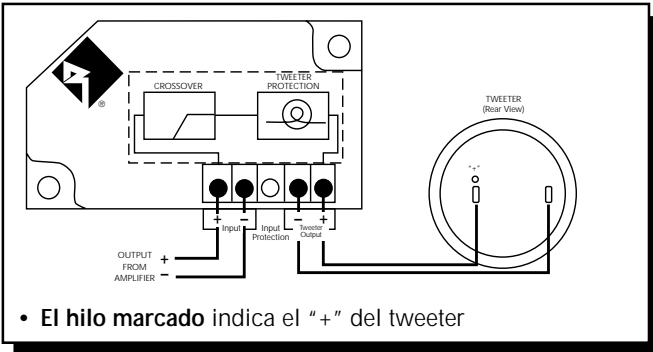
UBICACIÓN

- Instale los altavoces de forma que estén enfocados directamente al área de escucha.
- Para una integración óptima y para no tener problemas de fase en la zona de frecuencias donde se realiza el corte se recomienda especialmente situar los altavoces de medios y agudos a una distancia no superior a 5cm. (Figura 1)

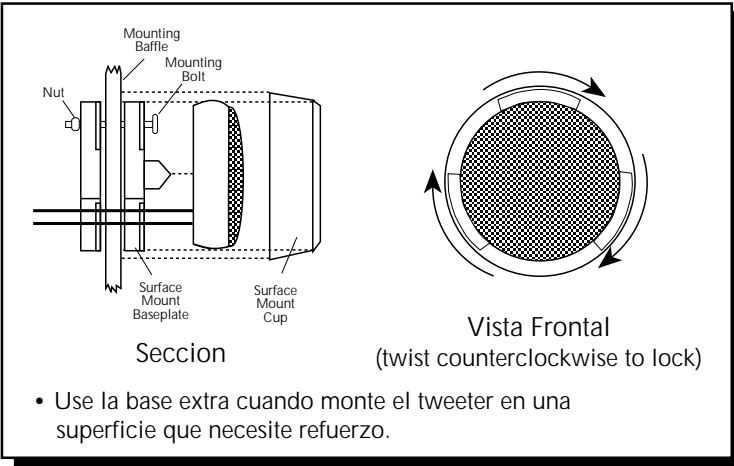


INSTALACION

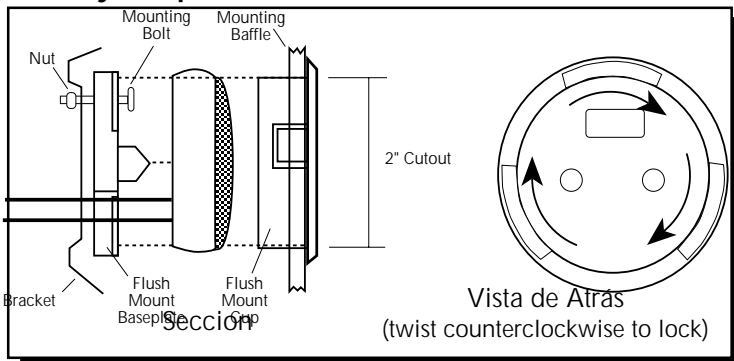
Crossover/Proteccion de Tweeter



Montaje en Superficie



Montaje Empotrado



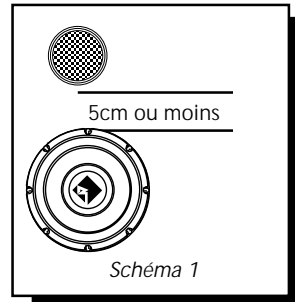
ATTENTION: VEUILLEZ LIRE LES INSTRUCTIONS SUIVANTES POUR L'INSTALLATION DE CE PRODUIT. NE PAS LES SUIVRE POURRAIT CAUSER DES BLESSURES OU ENDOMMAGER LE VÉHICULE.

INTRODUCTION

Les tweeters *Audiophile* (RFA-14x) et *Power* (RFR-14x) possèdent les caractéristiques de pointe destinées aux systèmes à hautes performances. Le tweeter *Audiophile* utilise un dôme en soie pour une haute qualité dans la réponse des aigus tandis que le tweeter *Power* utilise un dôme en titane pour résister aux hautes puissances. La directivité du tweeter peut être ajustée grâce au châssis orientable et la fiabilité est assurée par un circuit électronique de protection inclus dans le filtre.

MONTAGE

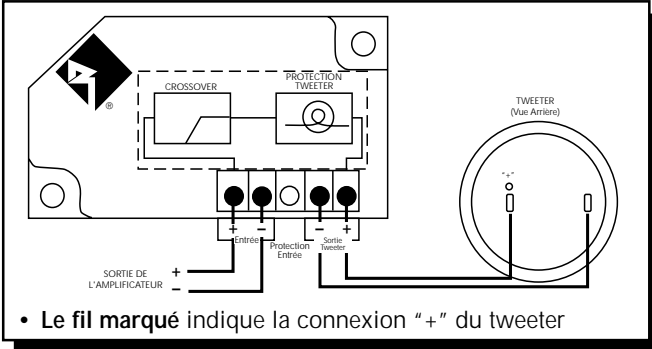
- Placer les haut-parleurs dans un accès direct à la zone d'écoute.
- Pour une intégration optimale entre le tweeter et le médium le tweeter devra être situé à moins de 5cm du médium (schéma 1)



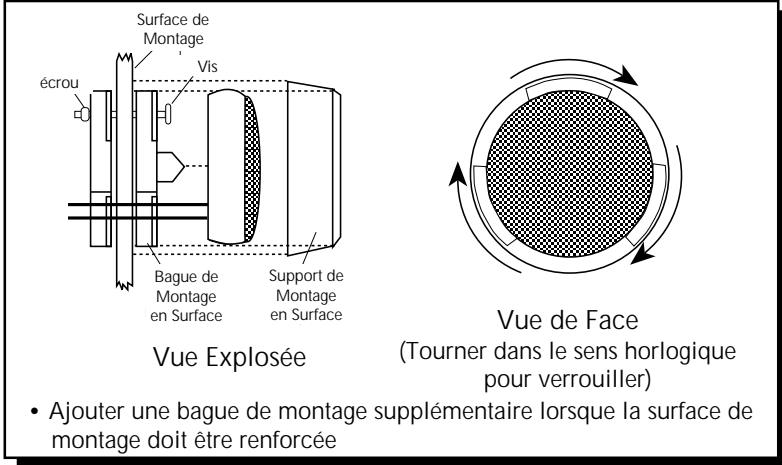
FRANÇAIS

INSTALLATION

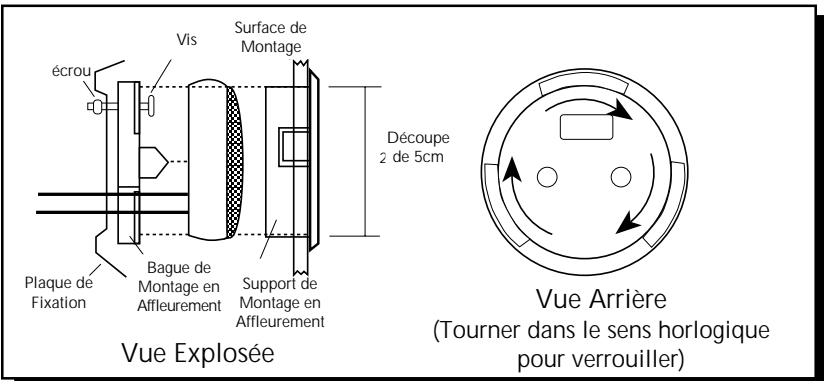
Filtre passe-haut / Protection du tweeter



Montage en surface du tweeter



Montage en affleurement du tweeter



BITTE LESEN SIE DIESE GEBRAUCHSANLEITUNG ZUERST SORGFÄLTIG DURCH. DAS KANN SIE VOR DEM FALSCHEN EINSATZ, AUSFALLEN ODER SOGAR BESCHÄDIGUNG DES PRODUKTES ODER IHRES FAHRZEUGES SCHÜTZEN.

EINLEITUNG

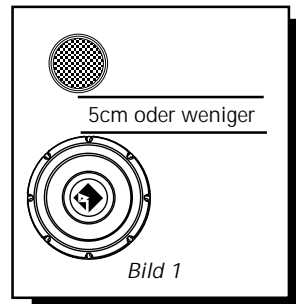
Die *Audiophile* (RFA-14x) and Power (RFR-14x) Hochtöner besitzen alle Features, um den Hochtonbereich eines High Performance Auto Hi Fi Systemes abzudecken:

- der *Audiophile*-Hochtöner mit der Gewebe-Kalotte für optimalen Frequenz-Verlauf und der Power Hochtöner mit Titanium-Kalotte für eine sehr hohe Belastbarkeit. Flexible und vielfältige Einbaumöglichkeiten durch verschiedene Montagerahmen.
- die Frequenzweiche als Herzstück mit einer besonderen Sicherungsschaltung für lange Lebensdauer.

DEUTSCH

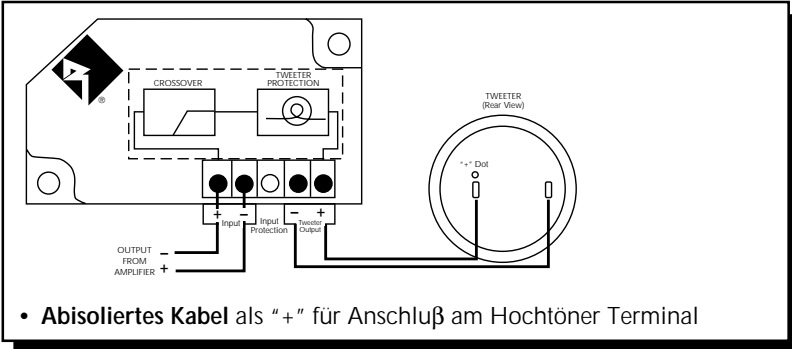
EINBAUORT

- Platzieren Sie die Lautsprecher möglichst so, daß Sie direkt in das Hörfeld strahlen können.
- Zum optimalen Zusammenspiel zwischen Hoch- und Mitteltöner sollte der Hochtöner maximal 5cm vom Mitteltöner entfernt montiert werden. (Bild 1)

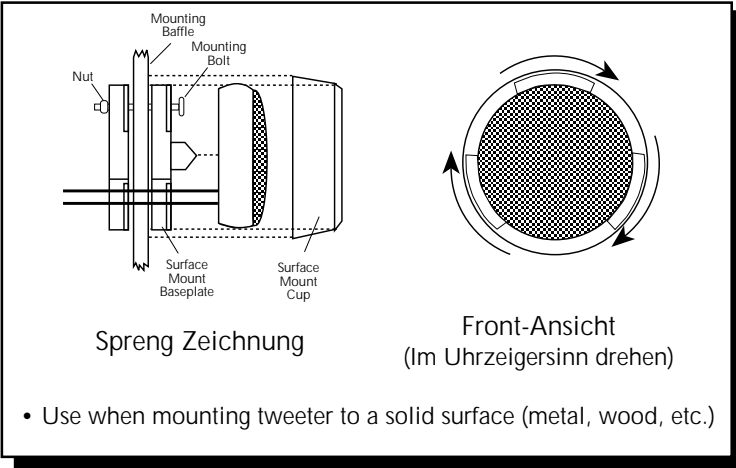


EINBAU

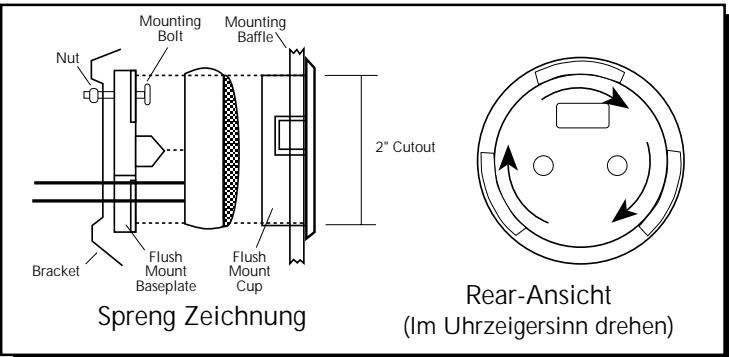
Frequenzweiche/Hochtön Sicherung



Hochtöner Aufbau-Montage



Hochtöner Einbau-Montage



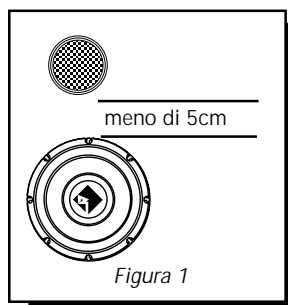
ATTENZIONE: SI PREGA DI SEGUIRE ATTENTAMENTE QUESTE ISTRUZIONI. NON FARLO POTREBBE RISULTARE DANNOSO PER LE PERSONE E PER L'APPARECCHIO.

INTRODUZIONE

I tweeter *Audiophile* (RFA-14x) e i Power (RFR-14x) incorporano caratteristiche avanzate per l'impiego in sistemi car stereo ad alte prestazioni. I tweeter *Audiophile* impiegano una cupola in seta per una elevata qualità della gamma alta, mentre i tweeter Power impiegano una membrana in titanio per permettere un'elevata tenuta in potenza. Una corretta dispersione alle alte frequenze é raggiungibile con la possibilità di orientare il tweeter, mentre la totale affidabilità é assicurata dal circuito di protezione inserito sul crossover.

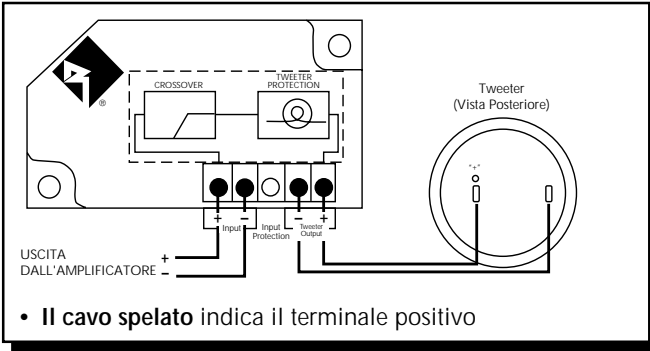
POSIZIONAMENTO

- Posizionate gli altoparlanti in modo di avere un'emissione diretta verso l'ascoltatore.
- Per la miglior integrazione acustica tra midrange e tweeter, i due altoparlanti devono essere posizionati a meno di 5cm tra loro. (Figura 1)

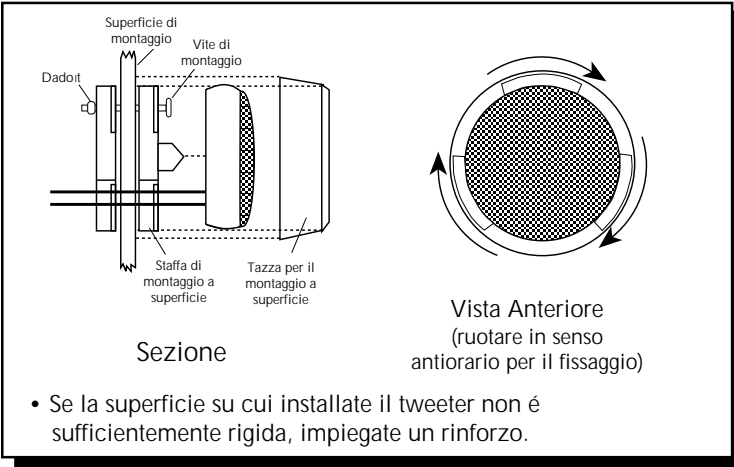


INSTALLAZIONE

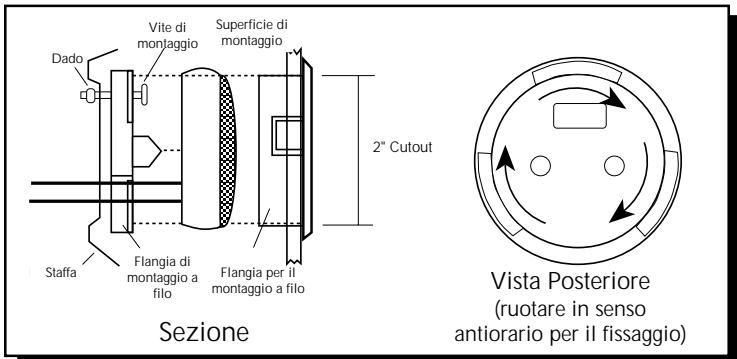
Crossover e protezione del tweeter



Montaggio a Superficie



Montaggio ad Incasso



MADE IN THE USA

This product is designed, developed and assembled in the USA by a dedicated group of American workers. The majority of the components used in the construction of this product are produced by American companies. However, due to the global nature of their manufacturing facilities and the loudspeaker parts industry in general, some parts may be manufactured in other countries.

Rockford Fosgate

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