

AF/2HD

ACTIVE FILTER
ADJUSTABLE CROSSOVER

INSTALLATION MANUAL

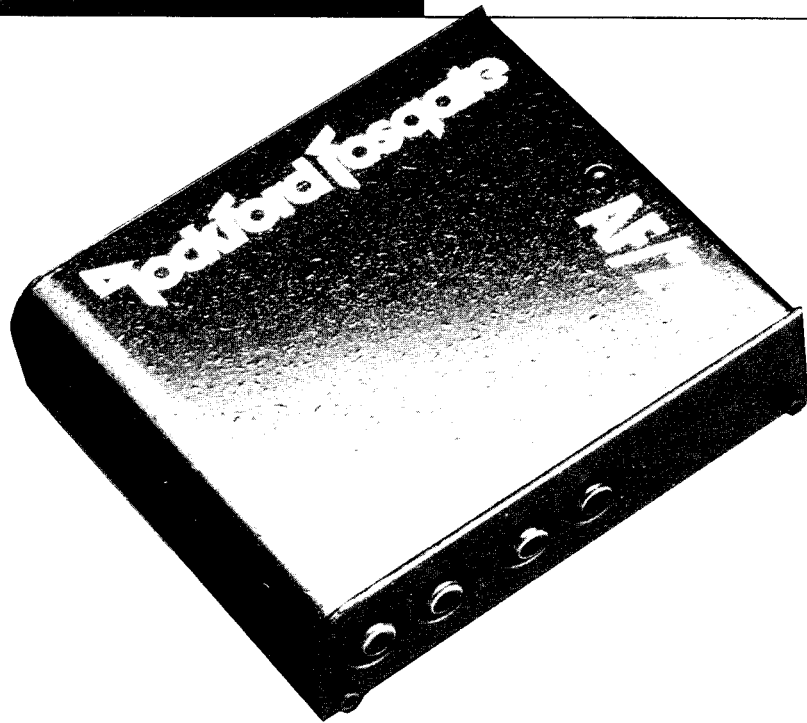


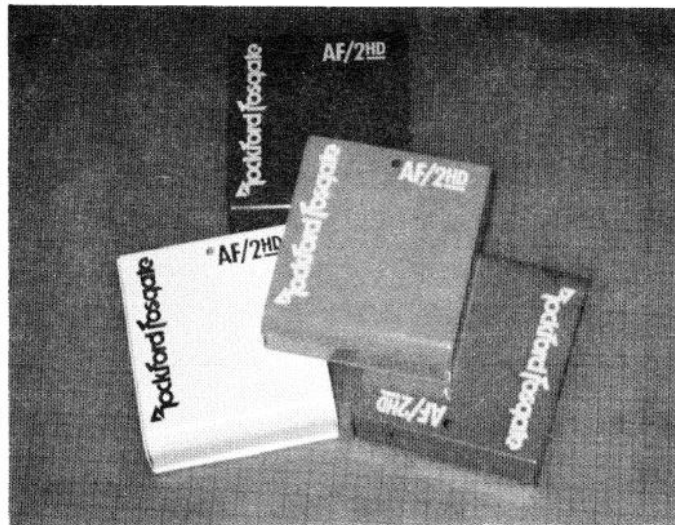


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Make your  system complete with Installation accessories from , a division of Rockford Corporation. Ask your sales representative about Perfect Power alternators, power cables, speaker wire, connectors, cosmetic accessories and fabric.



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

INTRODUCTION

The Rockford Fosgate AF/2HD is an active electronic crossover that incorporates HD (Hybrid Design) to provide state-of-the-art flexibility, performance and pleasing aesthetics. Its features include: two stereo inputs for true fading capability, infinitely adjustable frequency modules, user definable high-pass or low-pass filters, channel summing for mono applications, fully isolated high voltage power supply, low noise circuitry, low distortion, high-load driving capacity 750 mV RMS input level, 750 mV RMS output level.

- **FADING CAPABILITY**

The AF/2HD can be configured for fading and non-fading installations.

- **LEFT AND RIGHT CHANNELS CAN BE SUMMED FOR MONO APPLICATIONS**

Left and right channels can be summed to obtain one summed output for mono applications.

- **USER SELECTABLE FILTERS (HIGH PASS OR LOW PASS)**

A wide range of hybrid modules allows the designer to select high or low pass filter to fulfill sonic pleasures.

- **GOLD PLATED RCA'S**

This provides the most accurate signal transmission and the lowest possible loss. Gold plated terminals are immune to signal deterioration with time that can be caused by corrosion in the connectors.

- **INTERNAL FUSE FOR PROTECTION**

The AF/2HD has a built-in 1/2 amp fuse for protection from excessive current drives.

- **CONCEALED MOUNTING**

The AF/2HD's concise cabinet gives the installer the option of concealing the unit anywhere in the automobile without worrying about heat dissipation.

- **AUDIO CIRCUIT IS HYBRID DESIGNED**

The new AF/2HD incorporates hybrid circuitry which carries different surface-mount components that are laser trimmed to exacting tolerance.

- **LOW DISTORTION**

Such hybridization leaves more area on the "mother" circuit board for traces which provide zero signal loss and reduces crosstalk and distortion.

- **WIDE RANGE OF FREQUENCY MODULES, OR FASHION YOUR OWN**

Rockford Fosgate provides the information about the operating range of their drives so that you can choose a crossover frequency within that range to obtain maximum performance.

- **SMALL, LOW COST**

The miniature hybrid chips eliminate space on the PC board and help reduce the cost which is passed on to the customer.

- **HIGH LOAD DRIVING CAPACITY: CAPABLE OF HANDLING UP TO 10 ROCKFORD FOSGATE AMPLIFIERS**

The AF/2HD active crossover uses 2 hybrid modules for active gain stages which makes it capable of handling up to 10 Rockford Fosgate amplifiers.

- **12dB/OCTAVE CROSSOVER SLOPES**

Single component passive crossovers provide 6dB per octave rolloff. But the AF/2HD integrates complex active circuitry to achieve a 12dB per octave rolloff.

CASCADING OF OUTPUT TO INPUT PROVIDES 24dB/OCTAVE SLOPE
OR 12dB PER OCTAVE BANDPASS FILTER

INPUT AND OUTPUT LEVELS

The AF/2HD is designed for preamp-level (750 mVRMS) levels. Speaker-level inputs must be attenuated to under 1.0 VRMS.

Net gain in the filter passband of the AF/2HD is unity. (Output levels are equal to input levels)

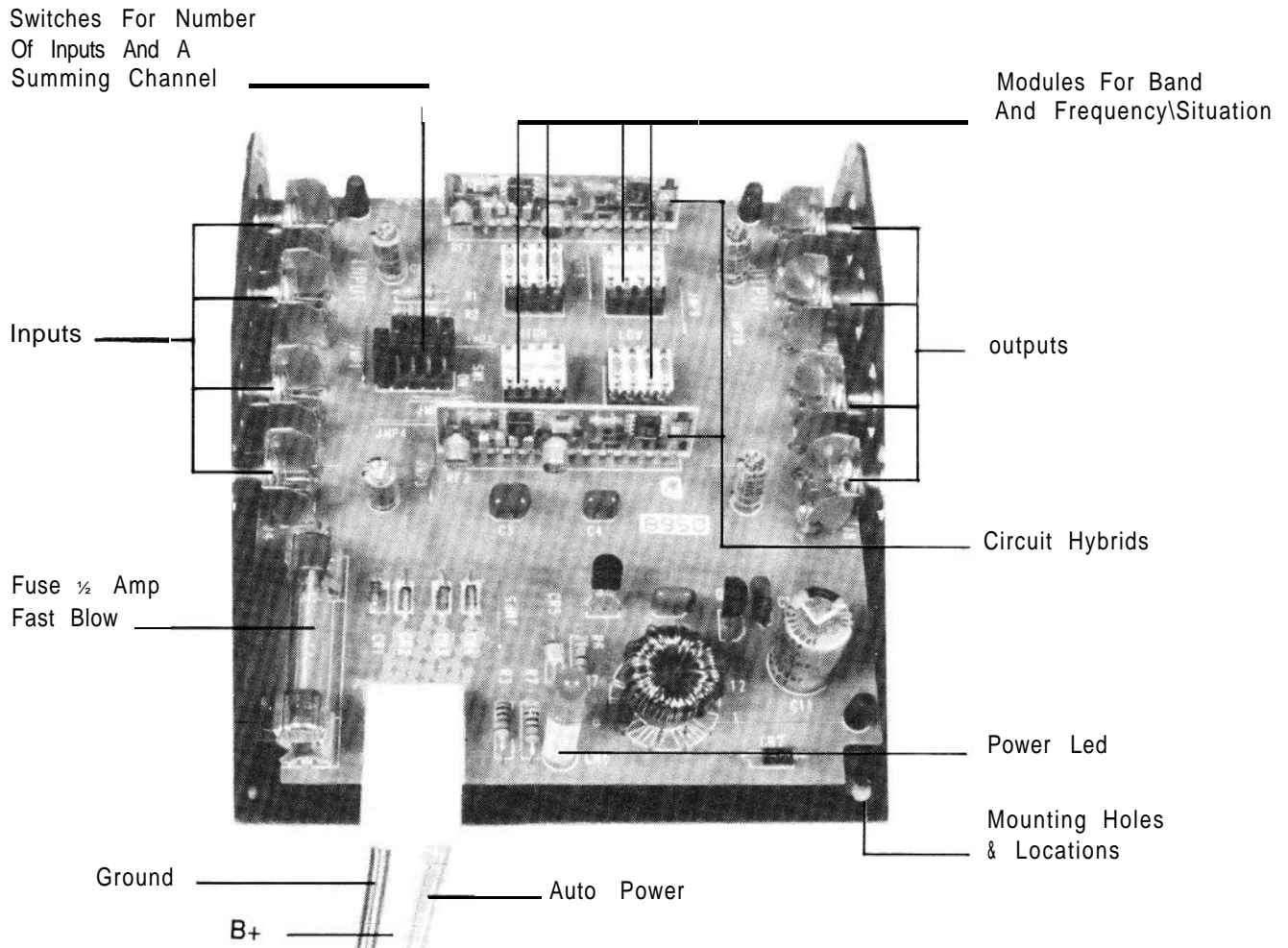
POWER WIRING INSTRUCTIONS

The Black 16-gauge wire should be grounded to the chassis. The White 16-gauge wire should be connected to a source of constant +12-Volt power. The Red 16-gauge wire is the trigger or turn-on wire. Connect it to the source unit's "Accessory" or "Auto-Antenna" lead, or to some other point that has 12V "positive" when the system turns on. See Figure 1.

PROTECTION FUSE

The AFMHD has a built-in main power fuse for over current protection. If blown, replace with . See Figure 1 for fuse location.

AF/2HD WIRING/FUSE/MODULE AND JUMPER LOCATIONS



FIGURE

FREQUENCY SELECTION

Custom crossover frequency modules will allow you to create notch filters or overlap frequencies to "equalize" in or out a desired response.

High and Low crossover frequencies in the AFMHD are selected by inserting frequency modules in sockets in the internal PC board.

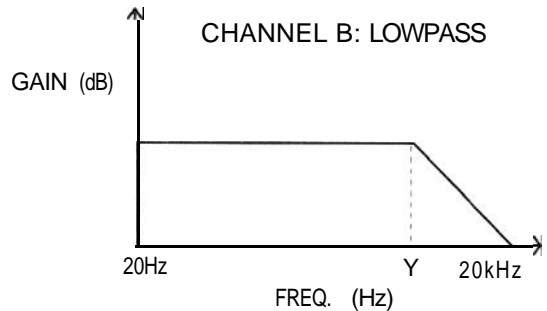
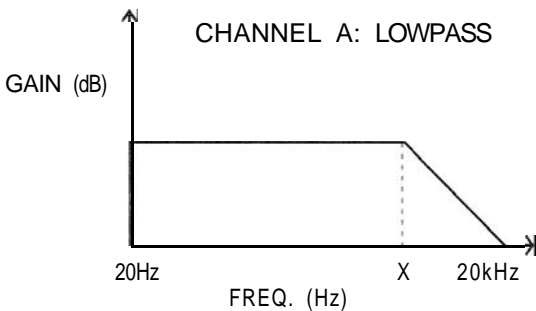
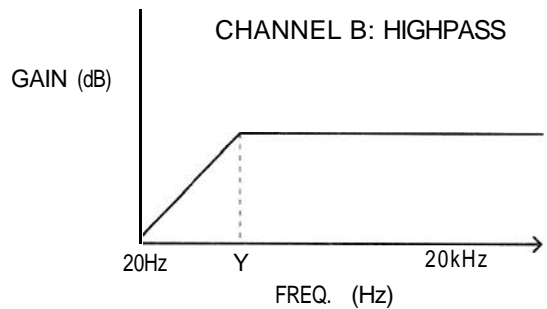
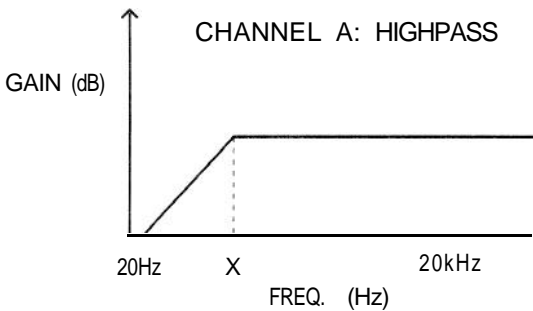
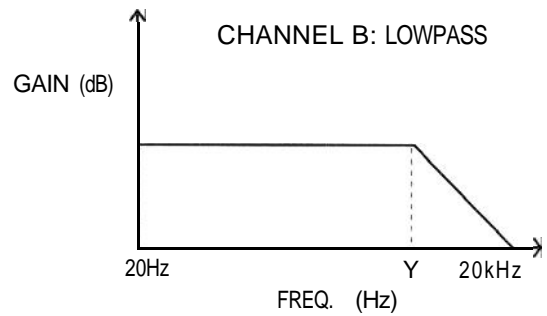
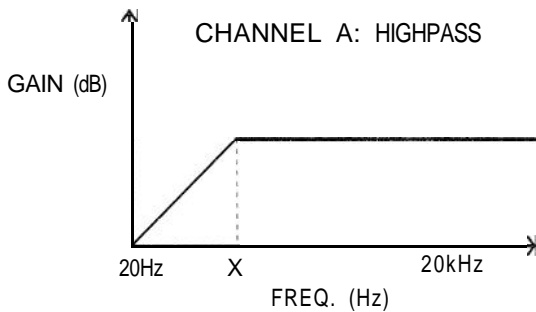
In order to change a frequency module, remove the four machine screws that hold the cover and remove the cover. Remove the frequency module you wish to change, and insert the new module in its place.

See Fig. 1 for module locations.

WARNING! TURN OFF SYSTEM BEFORE REMOVING MODULES!

BAND SELECTION

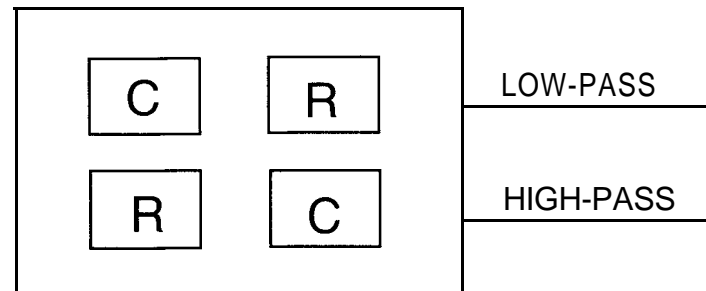
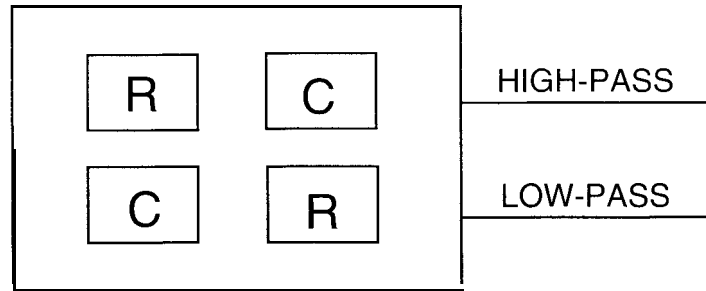
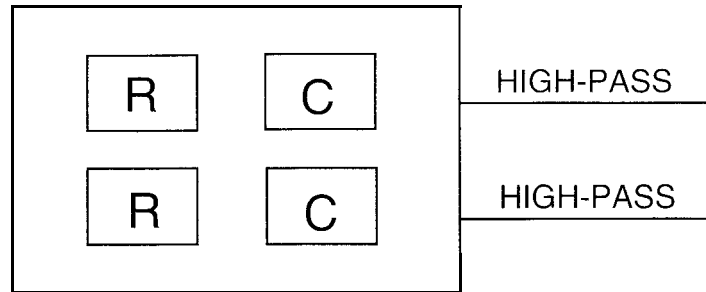
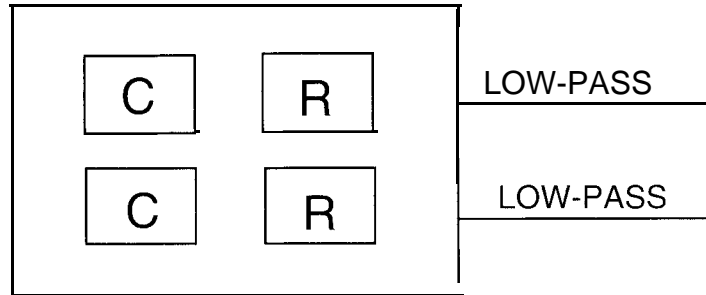
Both channels in the AF/2HD can be defined as either high or low pass filters allowing the following combinations:



NOTE: X AND Y ARE VARIABLES. THEY DEPEND ON THE MODULES USED ON THE BOARD.

The selection is done simply by placing the capacitor module (C) in the socket location marked High or Low on the PC board (See Figure 2). The empty location is where the resistor frequency module (R) is placed. See the pictures in band and frequency section.

Note: Each channel can do both types of filters depending on where you put the capacitor module.



AF/2HD BAND & FREQUENCY MODULE LOCATIONS

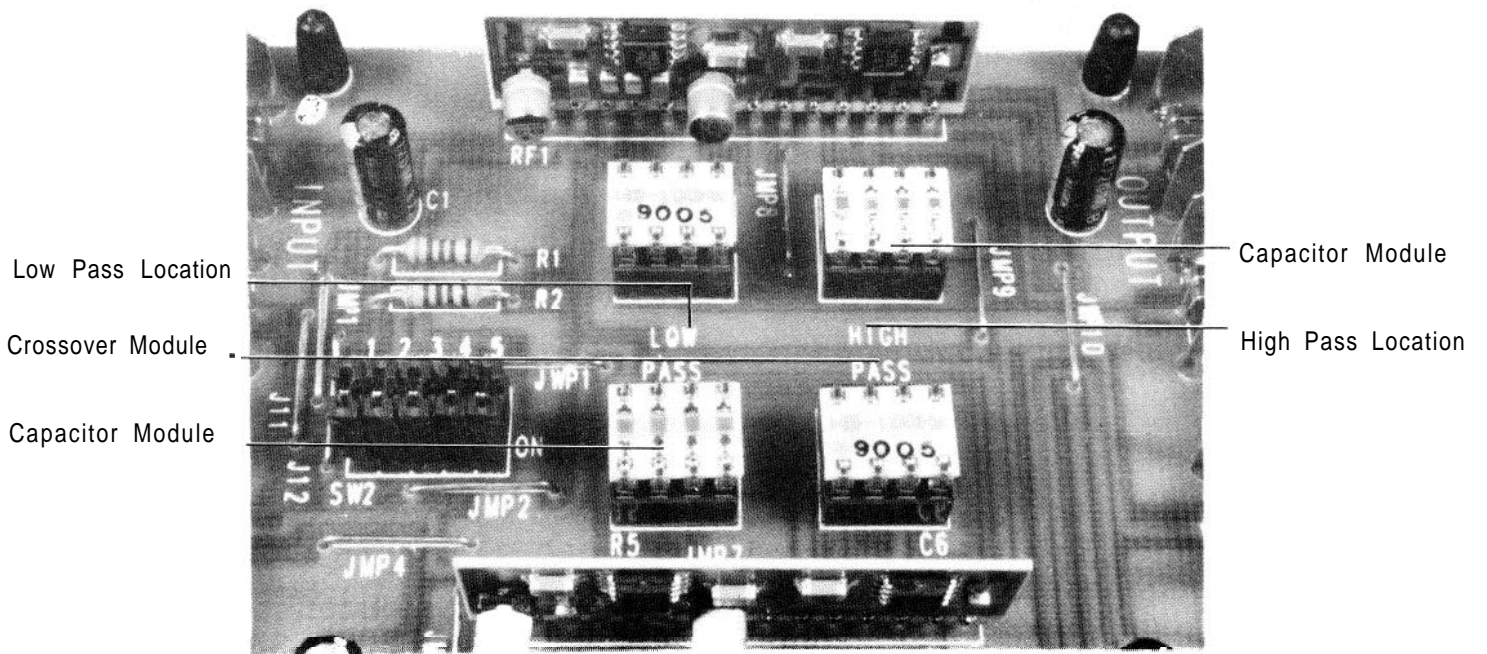
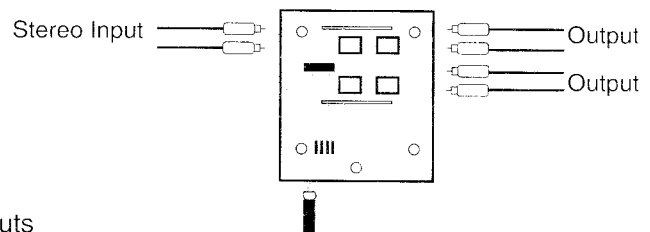
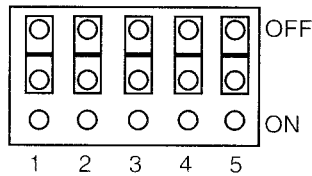


FIGURE 2

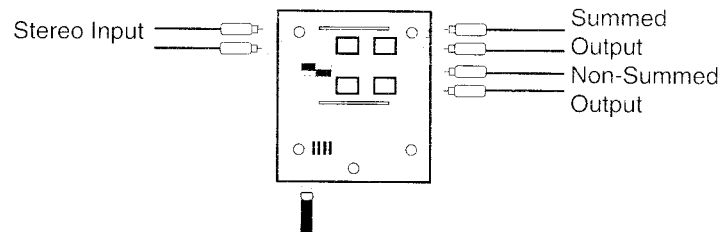
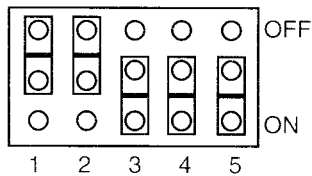
SWITCHING EXAMPLES

The AF/2HD is able to have one or two inputs. One input can be summed (see Figure 2). Therefore, the AF/2HD can be configured for non-fading or fading installations. See Switching Examples diagram.

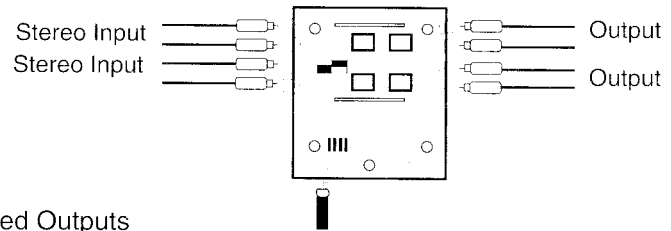
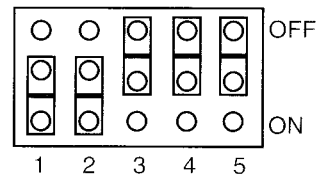
1. One Input - Two Filter Outputs



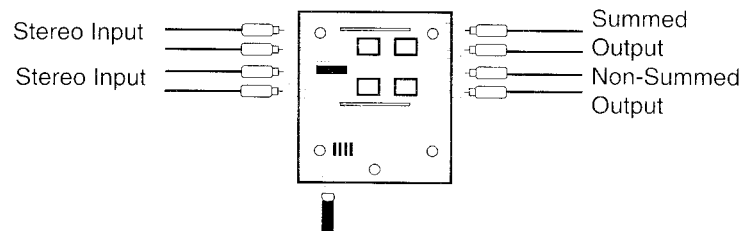
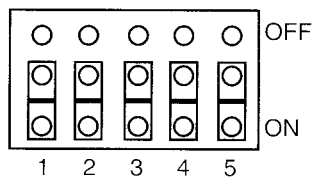
2. One Input Summed - Two Filtered Outputs



3. Two Inputs - Two Filtered Outputs



4. Two Inputs one summed - Two Filtered Outputs



Example: 1 and 2 are non-fadable connections
3 and 4 are fadable connections

ACTIVE - VS - PASSIVE CROSSOVERS

All crossovers are frequency divider networks. Both active and passive crossovers separate the audio frequencies before they arrive at the speakers, and pass to each speaker only the desired frequencies. An active crossover is an electronic "black box" (i.e. the AF/2HD) containing circuitry for frequency separation, and requires an electrical power supply. Passive crossovers go between the amplifier and the speaker, using inductors and capacitors. By contrast, active crossovers separate frequencies with the same high and low pass filter functions as passive crossovers, but are placed before the amplifier instead of after it.

Passive crossovers are usually much cheaper to use, since an additional amplifier is not needed. However, there are a number of benefits to using an active crossover.

- **FREQUENCY CONTROL:** With an active crossover, frequency control is not dependent on the impedance of the speaker.
- **CROSSOVER SLOPE:** In an active 12dB per octave crossover, slope is incorporated along with the ability to make it 24dB per octave.
- **FREQUENCY SELECTION:** With an active crossover, frequency selection is infinite.

CHOOSING CROSSOVER FREQUENCIES

Choosing the correct crossover frequency can be difficult. Consideration of the following items will help you make your selection easier.

OPERATING RANGE OF SELECTED DRIVERS:

Manufacturers will usually provide information about the operating range of their drivers so that you can choose a crossover frequency within that range to obtain maximum performance.

DESIRED POWER HANDLING OF DRIVERS:

High-pass crossovers can be changed to increase the power handling of a given driver. For example, a tweeter may handle 50 watts at 10 kHz, but only 2.5 watts at 4 kHz.

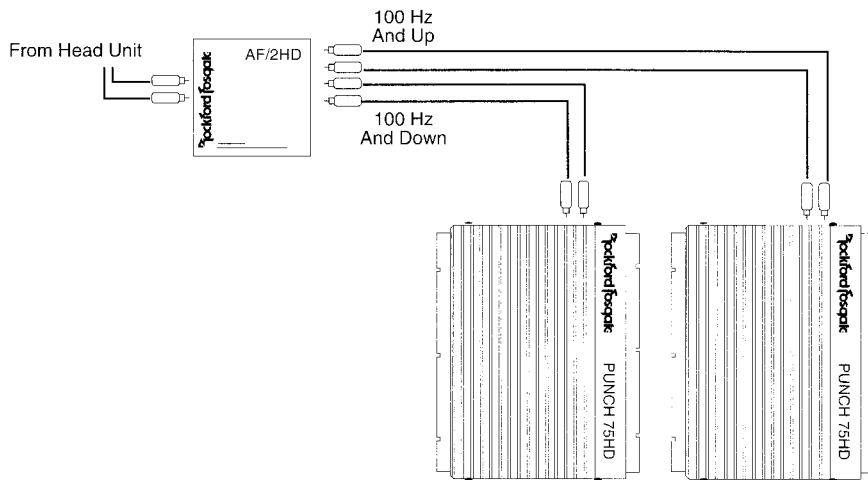
DESIRED RESPONSE OF SYSTEM:

Most autosound installations introduce a number of acoustical problems that can sometimes be corrected with careful attention to your crossover frequencies. The use of 1/3 octave RTA can help you determine if a problem exists and at what frequency.

The following crossover frequencies work the best with Rockford Fosgate drivers, and provide a good foundation for any autosound system.

Woofer	100 Hz Low-pass
Midbass	100 Hz High-pass-275 Hz Low-pass
Midrange	275 Hz High-pass-8 kHz Low-pass
Tweeter	8 kHz High-pass

NOTE: Depending on the desired response of a given system, crossover frequencies can be varied accordingly.



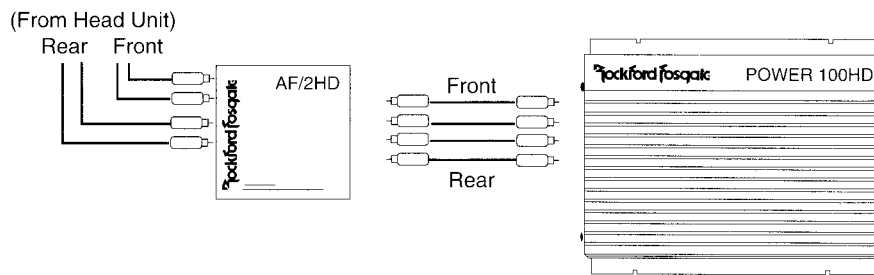
This configuration allows the installer to:

- Wire the system with 100 up stereo and 100 low bridged

Other options are:

- Front and rear stereo with different crossover points

- Both channels bridged at different crossover points



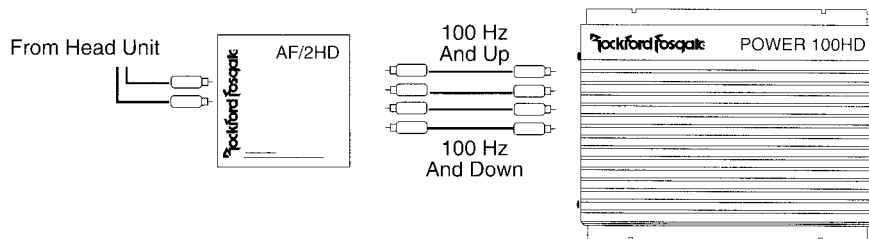
This configuration allows the installer to:

- Wire the system front and rear stereo with fade capability

- Wire front and rear stereo, bridged simultaneously

- Wire the system front and rear bridged

- Wire the system front stereo, rear bridged, with fade



This configuration allows the installer to:

- Wire the system with front stereo and rear bridged

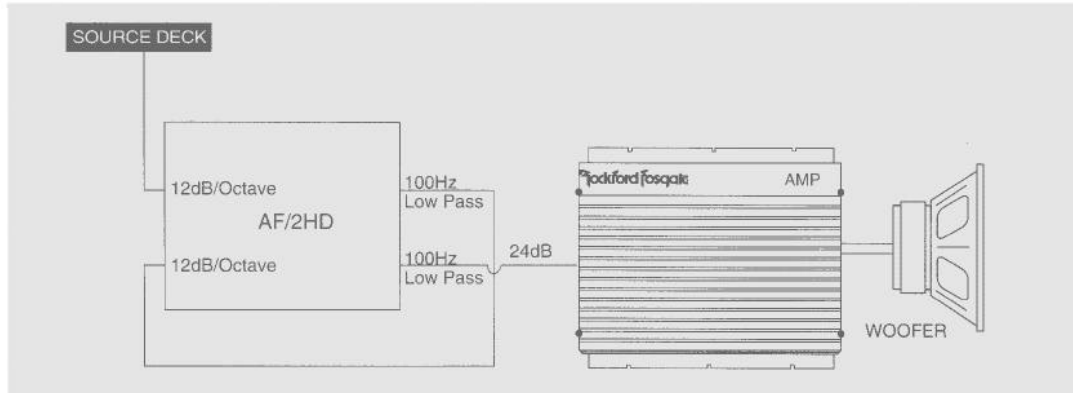
Other options are:

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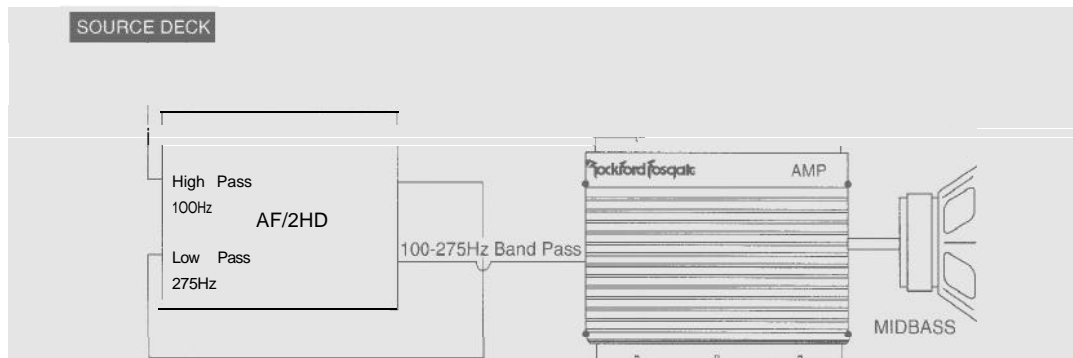
- Both channels bridged at different crossover points

EXTRA FEATURES:

Cascading from output to input to create 24dB per octave slope.



Cascading outputs to inputs to create a bandpass crossover.



AF/2HD SPECIFICATIONS

Input Level:	750 mV RMS
input impedance:	20,000 Ohms
Output Level:	750 mV RMS
Output Impedance:	500 Ohms
Signal-to-Noise Ratio:	Over 90dB (A-Weighted)
Distortion:	Under .01% THD + Noise
Frequency Response:	20 Hz-20,000 Hz +.5dB
Filter Response:	Butterworth
Filter Slope:	12dB per Octave
Power Required:	Positive 12 Volts Required
Dimensions:	4" wide x 4.25" long x 1.25" high 139.7mm x 146mm x 31.75mm
Weight:	13 oz. 595 grams

ROCKFORD FOSGATE LIMITED ELECTRONICS WARRANTY

Rockford Fosgate warrants all electronics to the original retail purchaser only, to be free from defects in materials or workmanship for a period of two (2) years parts and one (1) year labor providing the product was purchased from and installed by an Authorized Rockford Fosgate dealer. Warranty on products purchased from but not installed by an authorized dealer is one (1) year parts, no labor. This warranty is not transferable. Electronics found to be defective during the warranty period will be repaired or replaced at Rockford Fosgate's discretion. Repaired or replaced electronics will cover the balance of the original warranty period only.

Defective product must be shipped prepaid, together with proof of purchase and installation with a brief description of the problem, to the Rockford Fosgate Dealer from whom you purchased the product or to the factory in Tempe, Arizona in the original factory carton or equivalent. Any shipping loss or damage will be borne by you. If you return your product to the factory, please call 602-967-3565, ext. 3081 for a return authorization number. If upon inspection at either the Dealership or the factory a determination is made that the product has failed due to materials or workmanship, we will repair or replace it at no charge, and return it in a reasonable length of time. If a determination is made that the product has been abused or is out of the warranty period, it will be repaired and returned C.O.D. for the repair and freight. Warranty does not cover the cabinet or any appearance item, any cost or expense related to the removal or reinstallation of the product, any accessory used in conjunction with the product, or any damage to the product resulting from alteration, accident, misuse or abuse. This warranty does not apply if the parts or labor, which would otherwise be provided without charge under this warranty, are obtained from any other source than Rockford Fosgate or an Authorized Rockford Fosgate service center. Rockford Fosgate limits obligation under any implied warranties under state laws to a period not to exceed the warranty period. This warranty applies only to products sold in the United States of America, or its possessions. For warranty outside the U.S.A., please contact your local agent. This warranty will terminate if the serial number has been removed, tampered with, or defaced. This product has no factory warranty if purchased from any other than an Authorized Rockford Fosgate Dealer.

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