

OWNER'S MANUAL

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Rockford Fosgate®

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XV-2 ACTIVE THREE WAY CROSSOVER

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INTRODUCTION

The Rockford Fosgate XV-2 is an active crossover for multiple-amplifier autosound installations. It is designed to produce the best possible sound in a compact and affordable system.

FEATURES

- FULLY-FLOATING HIGH-VOLTAGE POWER SUPPLY
- LOW NOISE CIRCUITRY
- LOW DISTORTION
- WIDE RANGE OF FREQUENCY MODULES, OR FASHION YOUR OWN
- SMALL SIZE, LOW COST
- HIGH LOAD CAPACITY;CAPABLE OF -DRIVING UP TO 10 ROCKFORD-FOSGATE AMPLIFIERS
- SWITCHABLE FOR USE WITH 1 TO 3 INPUTS
- FADE-THROUGH CAPABILITY-FRONT, REAR, AND NON-FADED, DESIGNED TO MATE EXACTLY WITH PA-1 PREAMP
- SWITCHABLE HI-PASS OR BANDPASS
- SAME SIZE AS OEQ-1 FOR SYMMETRICAL AMP RACK DESIGNS.
- 'FLIP-TOP LID' FOR EASE OF ACCESS TO MODULES
- GOLD-PLATED RCA-TYPE CONNECTORS FOR MAXIMUM SIGNAL TRANSFER

INPUT AND OUTPUT LEVELS

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

Net gain in the filter passband of the XV-2 is one-output levels are equal to input levels.

POWER WIRING

The White 16-gauge wire (with fuse) should be connected to a source of + 12-Volt power. The Red 16-gauge wire is the trigger or turn-on wire. Connect it to the source or turn-on wire. **Black** connected to chassis ground.

Connect it to the source units' "amp turn on" or "Auto-Antenna" lead, or to some other point that goes "positive" when the system turns on.

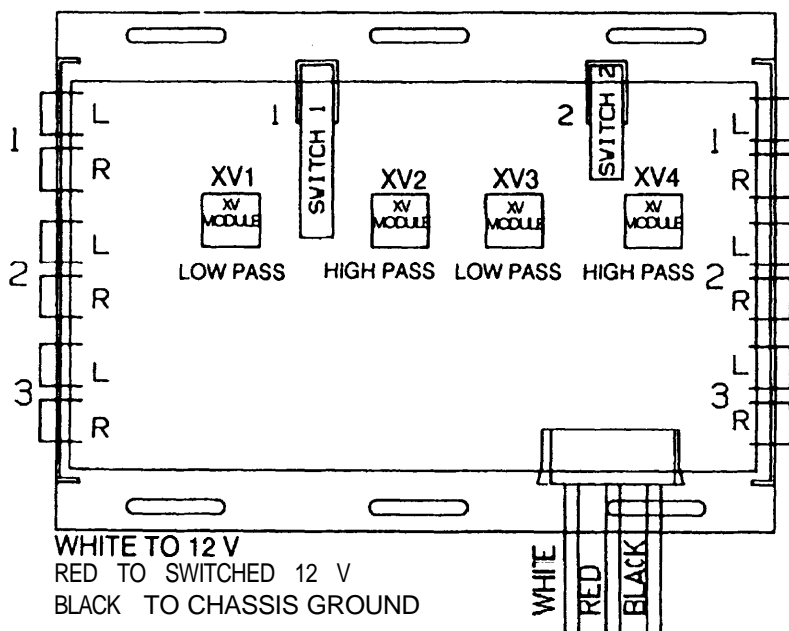


FIGURE ONE

FREQUENCY SELECTION

High and Low crossover frequencies in the XV-2 are controlled by inserting frequency modules in sockets in the internal PC board. The modules that control both High and Low frequencies are identical.

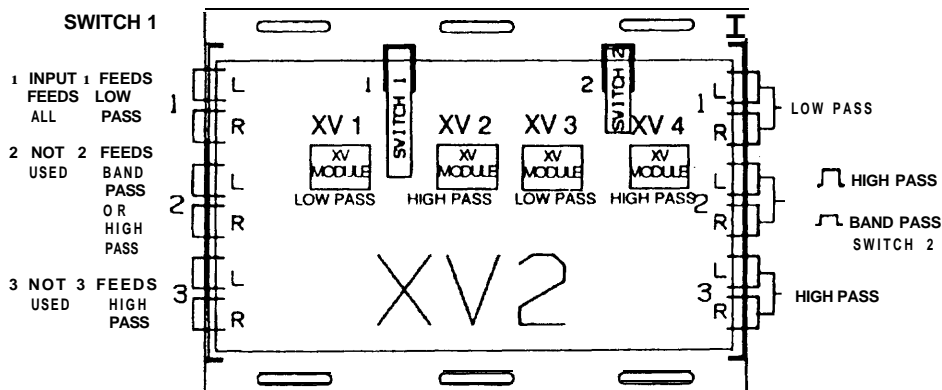
In order to change a frequency module, remove the two end machine screws to the left of the power wires and flip the top to the right. (Note: In order for the lid to flip completely open the output RCA leads must be removed.) Remove the frequency module you wish to change and put in the new module.

See Figure 2 for Module Locations.

WARNING! TURN OFF SYSTEM BEFORE REMOVING MODULES

ONE OR THREE INPUTS

THREE OUTPUTS



NOTE: BOTH SWITCHES ARE INDEPENDANT OF EACH OTHER

FIGURE TWO

BUILDING A CUSTOM CROSSOVER MODULE

If you want a frequency not available in the standard Rockford modules (which are available at half-octave intervals from 50 Hertz to 9,000 Hertz), you can, in fact, build your own module.

You will need:

- 1.
2. Soldering equipment
3. A source of 1/4-watt or 1/8 watt resistors. (Preferably 1% Resistors)

Determine the resistance value you need for the frequency you want from the formula below.

$$R = \frac{1}{1.38 (10^{-7})f} \text{ OHM's}$$

Where "f" is the frequency that you want

Use four resistors nearest the 'R' value you want and solder them into the component carrier. Refer to Fig. 3 for details.

NOTE: Although the XV-2 offers the added flexibility of building in your own custom crossover points, it should be emphasized that you take advantage of your Rockford Dealer's expertise, and rely upon him for adjustment and installation. This will insure full benefit of warranty.

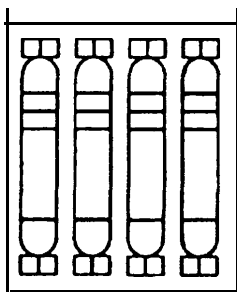


FIGURE THREE

FREQUENCY MODULE DETAIL

For Resistor values see the following chart

FREQUENCY RESISTOR VALUES

The following table was tabulated by using the formula that was given earlier.

Frequency	<u>Resistance</u>	<u>Frequency</u>	<u>Resistance</u>
50 Hz	150Kohms	800 Hz	9.1K ohms
70 Hz	100Kohms	1K Hz	7.5K ohms
100 Hz	75K ohms	1.5KHz	4.7K ohms
150Hz	47K ohms	2K Hz	3.6K ohms
200 Hz	36K ohms	3K Hz	2.4K ohms
275 Hz	27K ohms	4.5KHz	1.6K ohms
400 Hz	18K ohms	6.5KHz	1.1K ohms
550 Hz	13K ohms	9K H z	820 ohms
750 Hz	9.7K ohms	13K Hz	557 ohms

ACTIVE -VS- PASSIVE CROSSOVERS

All crossovers are frequency divider networks. Passive crossovers go between the amplifier and the speakers, using bulky inductors and capacitors. Passive crossover components for low frequencies are particularly large and heavy. By contrast, active crossovers divide frequencies before the amplifiers with the same high and low pass filter functions as passive crossovers, but since they are made with integrated circuits, they are much smaller and lighter.

Passive crossovers are, of course, much cheaper to use, since an additional amplifier isn't needed. However, there are a number of problems.

***FREQUENCY CONTROL:** The response of a passive crossover depends strongly on the characteristics of the particular speaker.

***CROSSOVER SLOPE:** Single component passive crossovers (**1** cap or **1** inductor) only provide 6dB per Octave rolloff. Twelve dB per Octave passive require more design time and expense.

All these problems are reduced or eliminated by an active crossover/amplifier system.

CHOOSING CROSSOVER FREQUENCIES

The best crossover frequency depends entirely on the type and performance of the speakers you are using.

***BASS-TO-MIDRANGE:** When crossing from midrange to woofers, frequency cutoffs for the woofers can range from 70 to 500 Hertz, and midranges should come in between 200 and 700 Hertz. ROCKFORD FOSGATE ships the XV-2 with the following modules; a 100Hz Low channel cutoff, a 100Hz to 275Hz bandpass and a 275Hz High channel cutoff. We have found that these frequencies work well with many woofer-midrange combinations.

***MIDRANGE-TO-TWEETER:** The tweeter cutoff frequency will be determined by the tweeter's power and frequency-handling capacity. Some small tweeters (like the Rockford Fosgate SPT4/8) must be crossed out at 9 KHz in high-powered systems. other, more rugged tweeters (like the Rockford Fosgate SPT14/18) can be crossed as low as 6 KHz in moderate-power systems. The appropriate crossover frequency for the midrange is determined either by the minimum tweeter frequency or by the midrange's harshness at high frequencies.

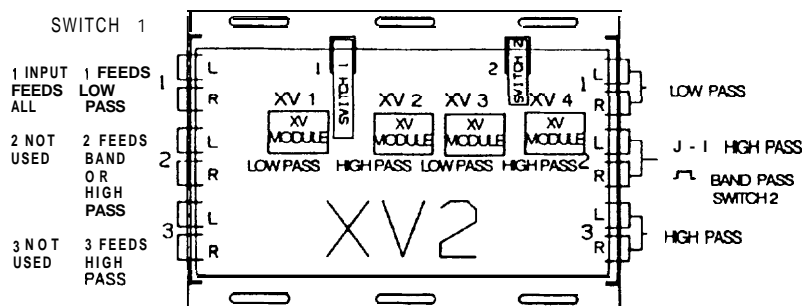
A typical starting point would be to cross the midrange out at 6.0 KHz and the tweeter in at 8.0 KHz.

- » **NOTE:** If you are not quite sure of the direction you should take, help is but a phone call away. Rockford Fosgate's Customer Service Department can be reached toll free at: 1-800-821 -2349.

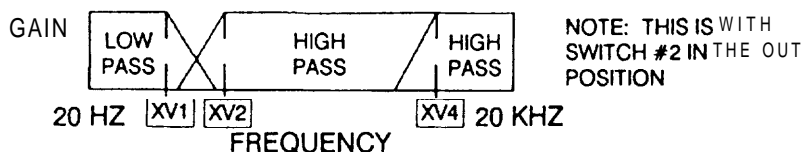
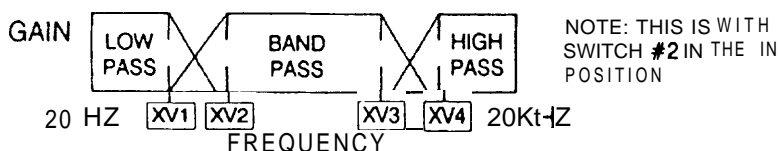
XV - 2 CAPABILITIES

ONE OR THREE INPUTS

THREE OUTPUTS



NOTE: BOTH SWITCHES ARE INDEPENDENT OF EACH OTHER

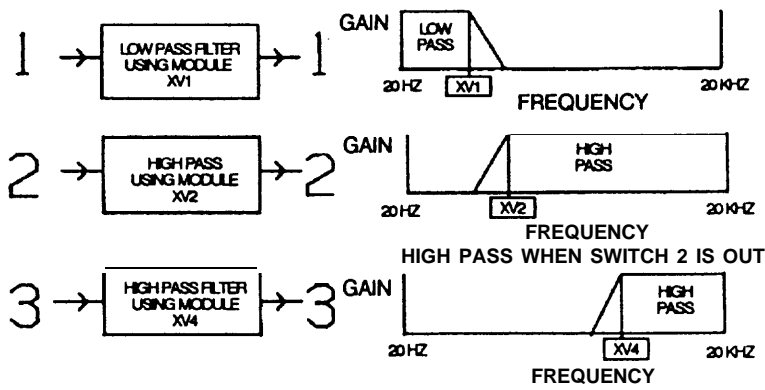


NOTE: XV3 IS NOT USED

FIGURE FOUR

SWITCH OPERATION DIAGRAMS

SWITCH ONE IN THE IN POSITION SWITCH TWO IN THE OUT POSITION



SWITCH ONE IN THE OUT POSITION SWITCH TWO IN THE IN POSITION

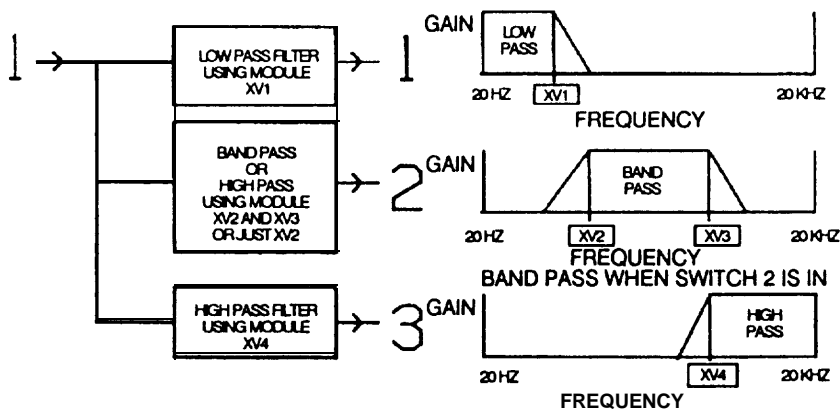
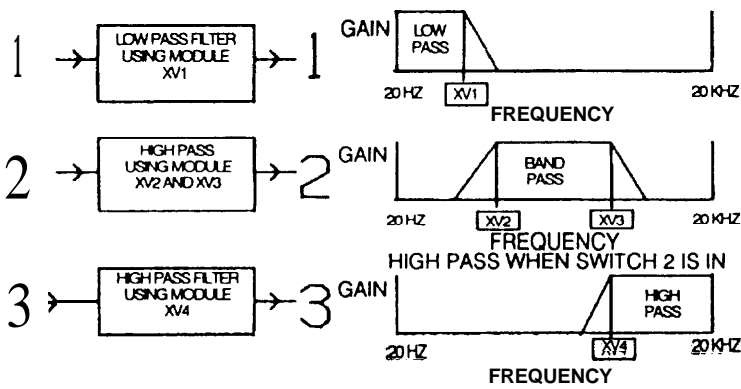


FIGURE FIVE

SWITCH OPERATION DIAGRAMS (Continued)

SWITCH ONE IN THE IN POSITION SWITCH TWO IN THE IN POSITION



SWITCH ONE IN THE OUT POSITION SWITCH TWO IN THE OUT POSITION

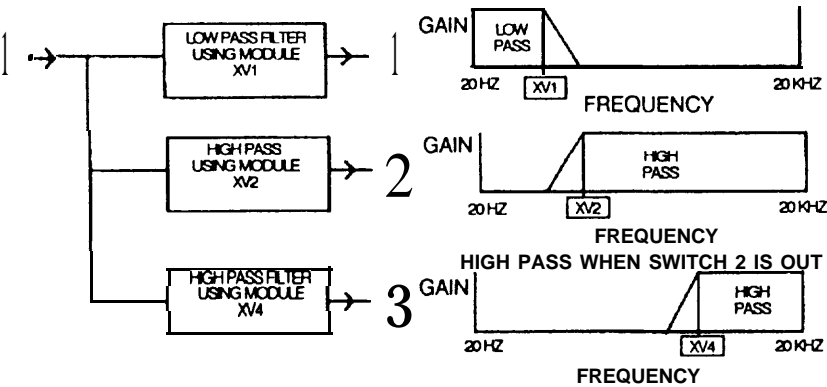
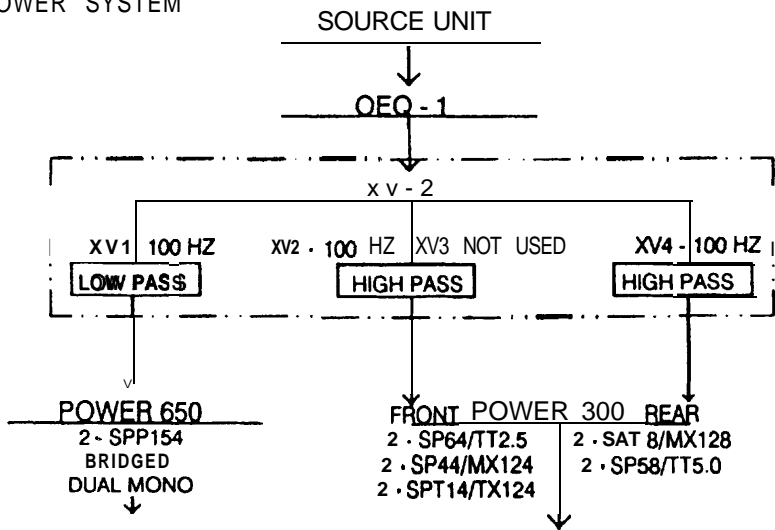


FIGURE SIX

SYSTEM EXAMPLES USING THE XV-2

POWER SYSTEM



POWER SYSTEM WITH BAND PASS

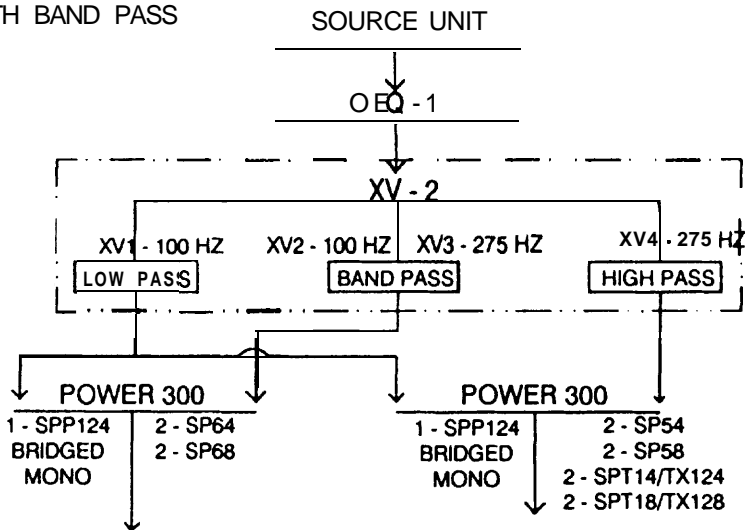


FIGURE SEVEN

SYSTEM EXAMPLE USING THE XV-2 (Continued)

PUNCH SYSTEM
WITH FADING
CAPABILITIES

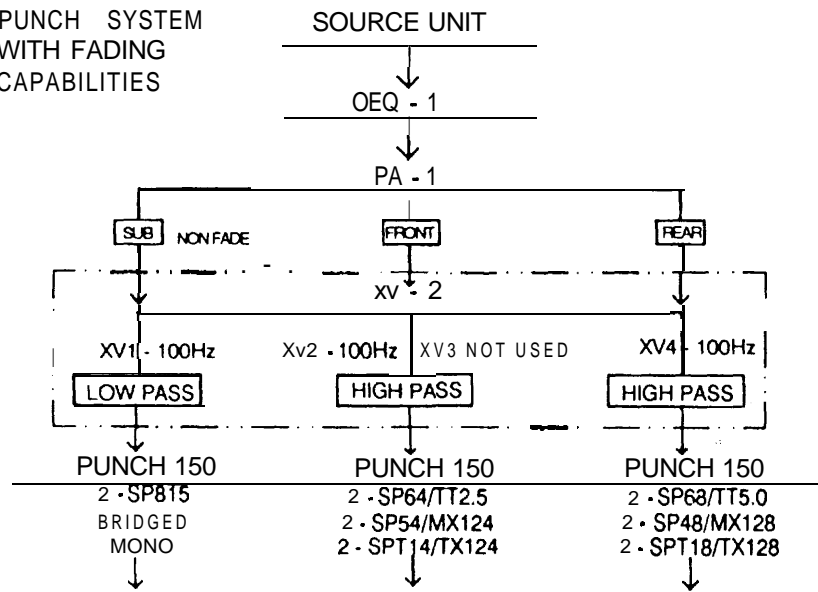


FIGURE EIGHT

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	7.85 in. X4.72 in. X 1.175 in.
Weight	1.69 lb.