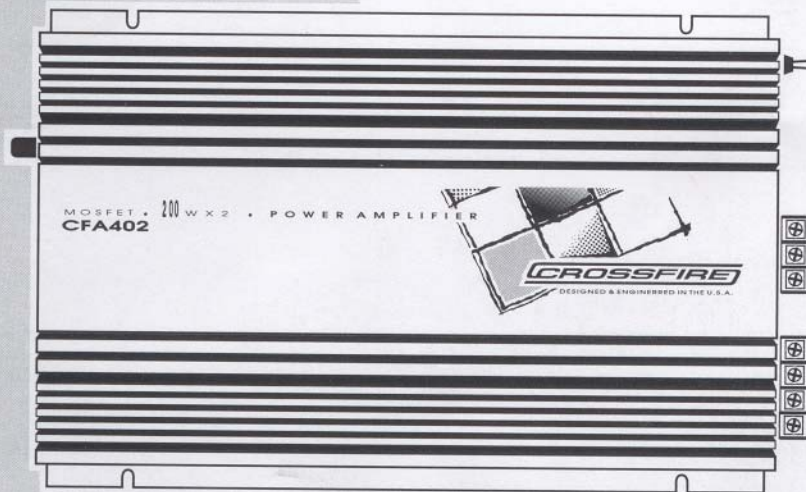


INSTALLATION MANUAL

MOSFET POWER

Amplifiers



MODEL : CFA142, CFA202, CFA302, CFA402, CFA602, CFA354, CFA404, CFA602

Thank you and congratulations for choosing **CROSSFIRE** mobile audio for your amplification needs. **CROSSFIRE** amplifiers have been significantly improved throughout the years to assure quality and reliability. The latest in technology has been incorporated into every **CROSSFIRE** product providing you with incredible power and unparalleled sound quality. Our simple, yet highly developed circuitry contributes to low distortion and the ultimate in efficiency. This is why we are sure that your new **CROSSFIRE** amplifier will provide you with a sound value you will enjoy for years to come.

FEATURES

- Military Spec Audiophile Grade Components
- High Efficiency Mosfet Power Supplies
 - Multi-standed power torroids
 - IRFZ44 MOSFET transistors
- Oversized Capacitor Banks
- Wire Free PC Board Layouts
- Fully 2 Ohm Stable Stereo Operation
- Gold Plated Input and Output Connectors
- Switchable Electronic Crossover
- Simultaneous Mono/Stereo Operation Capability
- Internally Bridgeable
- 6 way Protection Circuitry
- Soft Remote On/Off Circuitry
- High Level Inputs
- Two Year Limited Warranty

IMPORTANT

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION !

The quality of installation may affect the performance and reliability of your **CROSSFIRE** product. If you have any doubts or questions regarding installation, you may wish to contact your authorized **CROSSFIRE** dealer. Remember to heed all wire and fuse requirements suggested in this manual. Warranty may be void if proper installation technique is not used (refer to warranty section in the rear of this manual).

SPECIFICATIONS

MODEL	CFA142	CFA202	CFA302	CFA402	CFA602	CFA354	CFA404	CFA390M
RMS POWER	35W x 2	50W x 2	75W x 2	100W x 2	150W x 2	35W x 4	50W x 4	200W x 1
MAX POWER (MONO)	140W x 1	200W x 1	300W x 1	400W x 1	600W x 1	140W x 2	200W x 2	390W x 1 (2 ohms)
T.H.D.	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
BANDWIDTH	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-38KHz	5Hz-100KHz
SIGNAL TO NOISE	>93dB	>95dB	>97dB	>97dB	>100dB	>95dB	>95dB	>94dB
DAMPING FACTOR	>150	>200	>200	>200	>300	>200	>200	>250
SEPARATION	60dB	60dB	62dB	62dB	68dB	60dB	61dB	NA
INPUT SENSITIVITY	140mV-4V	140mV-4V	190mV-4V	190mV-4V	190mV-5V	140mV-3V	140mV-4V	190mV-5V
INPUT IMPEDANCE	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm	20Kohm
POWER FUSE	15 Amp	20 Amp	25 Amp	Dual 25 Amp	Dual 30 Amp	25 Amp	30 Amp	Dual 25 Amp
DIMENSIONS W :	9.6 IN	9.6 IN	9.6 IN	9.6 IN	9.6 IN	9.6 IN	9.6 IN	9.6 IN
H :	2.0 IN	2.0 IN	2.0 IN	2.0 IN	2.0 IN	2.0 IN	2.0 IN	2.0 IN
L :	8.35 IN	10.32 IN	11.5 IN	13 IN	15 IN	10.32 IN	11.5 IN	11.5 IN
CROSSOVER								
LOW PASS	70Hz	70Hz	70Hz	70/100Hz	70/100Hz	70Hz	70Hz	50/70/100Hz
HIGH PASS	120Hz	120Hz	120Hz	N/A	N/A	120Hz	120Hz	120/150Hz (output)
X-OVER SLOPE	12dB	12dB	12dB	12dB	12dB	12dB	12dB	12dB
45Hz BOOST SWITCH	No	No	Yes	Yes	Yes	No	No	No

MOUNTING

Appropriate mounting of the amplifier is very important for prolonged life expectancy of any amplifier. Select a location of applicable space that allows sufficient airflow. Keep in mind that an amplifier should never be mounted upside down, Upside down mounting will compromise heat dissipation through the heatsinks and will engage the thermal protection circuit much sooner. Excessive heat will shorten your amplifier's life. To maximize heat disipation, be sure to leave at least 2.5 inches of clearance around the amplifier. Fans should be used in correspondence with an escape duct for the heat when mounting in an enclosed or restricted area.

To avoid slipping and scratching your new **CROSSFIRE** amplifier, predrill your mounting holes with either a #29 or 9/64" diameter drillbit when using the screws supplied in the accessory kit. Be sure to investigate your mounting area thoroughly for electrical wires, vacuum lines, and brake or fuel lines to prevent any expensive mistakes.

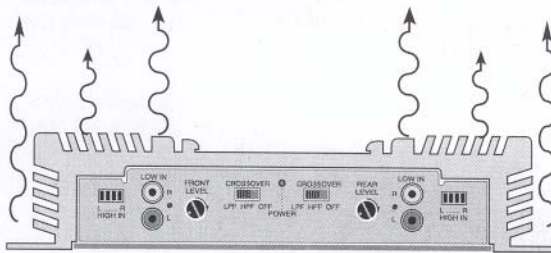
✗ INCORRECT MOUNTING

Heat is trapped inside if the amplifier, shortening the life of the electronic components.



○ CORRECT MOUNTING

Heat is lifted from the amplifier.



POWER SUPPLY CONNECTIONS

CROSSFIRE amplifiers are designed to work within 10 to 16 volts DC. Before any wires are connected, the vehicle's electrical system should be checked for correct voltage supply with the help of a volt meter. First check the voltage at the battery terminals with the ignition in the off position. The volt meter should read no less than 12 volts. Next check the battery with the engine running between 1500 and 2000 rpms. The volt meter should now read between 13.5 and 14.5 volts. If your vehicle's electrical is not up to these specifications, we recommend having it checked by an automotive mechanic before you further the installation.

Once the vehicle is checked, proper wire size should be chosen. We recommend the following wire sizes for lengths up to twenty feet. If a longer length is needed, a larger gauge wire may need to be used.

CFA142	12 Gauge
CFA202	10 Gauge
CFA302	10 Gauge
CFA402	8 Gauge
CFA602	4 Gauge
CFA354	10 Gauge
CFA404	8 Gauge
CFA390M	8 Gauge

POWER

All **CROSSFIRE** amplifier's power wire should be wired directly to the battery using the wire requirements listed above. Start at the amplifier and run the power wire through the vehicle to the battery. **CROSSFIRE** recommends the use of grommets when passing the power wire through any metal wall and to avoid sharp corners or sharp body parts which may easily cut through the insulation on the wire. Avoid running the power wire over engine components and near heater cores. The use of an inline fuse will eliminate the risk of a fire caused by a short in your power wire. Connect the fuse holder as close to the battery positive as possible. Use a fuse of equal value as that found on the chassis of your **CROSSFIRE** amplifier. You may now connect the wire to the battery, but remember to leave the fuse out until all other wire connections are made.

GROUND

When grounding your **CROSSFIRE** amplifier, locate a metal area close to the amplifier that is a good source of ground (preferably the floor). Once again investigate the area you wish to use for electrical wires, vacuum lines, and brake or fuel lines. Using either a wire brush or sandpaper, eliminate unwanted paint to supply a better contact for your ground. Use the same gauge wire for ground as you did for the power. Terminate the ground wire using the correct size ring terminal and attach it to the bare metal using a #8 sheet metal screw. It is important for this connection to be solid. To complete the job, spread silicon over the screw and bare metal to prevent rust and possible water leaks.

Now it's time to connect the power and ground wires to the amplifier. Cut both wires to length. Crimp the supplied yellow spade connectors to the power and ground. Use a #2 phillips screwdriver to loosen the **+12v** and the **GND** connections on the amplifier. Take the power and ground and place them in the correct terminals. Tighten the screws down securely.

REMOTE TURN-ON

In between the power and ground is a remote turn-on terminal. This terminal must be connected to a switched +12 volt source. Typically, remote turn-on leads are provided at the source unit which will turn on and off the amplifier in correspondence with the source. If a radio does not have a remote turn-on, then a power antenna wire may be used. Yet if neither of these leads are available at the source, a switched +12 volt supply must be used.

Run a minimum of 18 gauge wire from the amplifier location to the source of the switched +12 volt lead. If possible, route this wire on the same side of the vehicle as your power wire. Connect the source remote output to the wire. Go back to the amplifier and cut the wire to length. Crimp one of the supplied blue spade connectors to the end of the wire. Loosen the screw terminal marked **REM** on the amplifier using a #2 phillips screwdriver. Slip the spade connector in place and tighten the screw securely.

SPEAKER OUTPUT

OPERATION

All **CROSSFIRE** amplifiers are capable of running in three operating modes; stereo, mono or bridged, and stereo/mono simultaneously with the exception of the CFA 390M (see CFA390M operation section). This gives the CFA142, CFA202, CFA302, CFA 402 and the CFA602 amplifiers the capability to operate in one, two, or three channels. The CFA404 has the capabilities to power two, three, four, five and even six channels of operation! Choose the mode that best suits your needs before you wire your speaker leads. (refer to graphs)

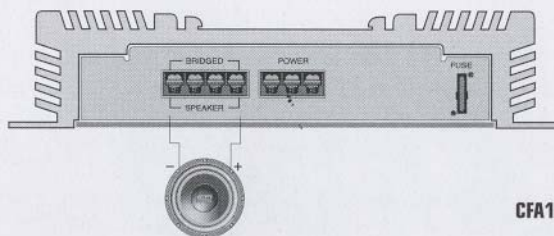
LOAD

Keep in mind **CROSSFIRE** CFA series are high power amplifiers and not high current amplifiers. In other words they require minimum impedance of 2 ohms stereo and 4 ohms bridged mono to operate trouble free. Too low of an impedance will send your **CROSSFIRE** amplifier into protect mode and possibly damage it. So remember to check your speaker's impedance ratings before connecting them.

WIRING

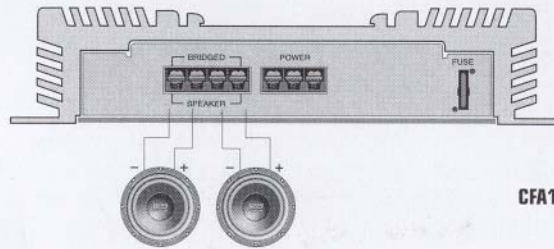
Choose the correct speaker wire for your application. Most applications will require a minimum of 16 gauge. Route these wires using the same precautions as you did when you ran the power wires. Terminate these wires at the speaker end using insulated speaker terminals (not supplied) or by soldering the connection. Make sure the speaker connections are positive to positive and negative to negative. At the amplifier end, crimp the remaining blue spade connectors from the accessory pack to the speaker wire leads. Use a #2 phillips screwdriver to loosen the speaker terminals on the amplifier. Slip the spade connectors in place and tighten the screws securely. Check to make sure you've maintained proper polarity and balance.

1 Channel Operation (Bridge Mono)



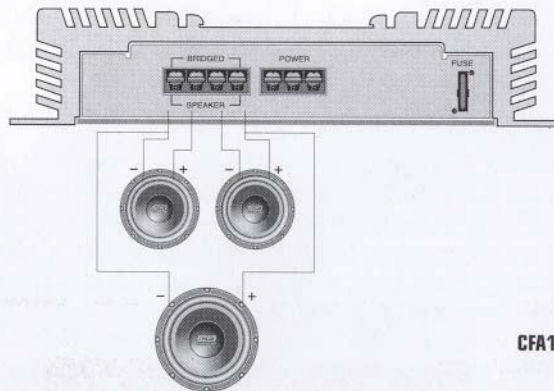
CFA142, 202, 302, 402, 602

2 Channel Operation (Stereo)



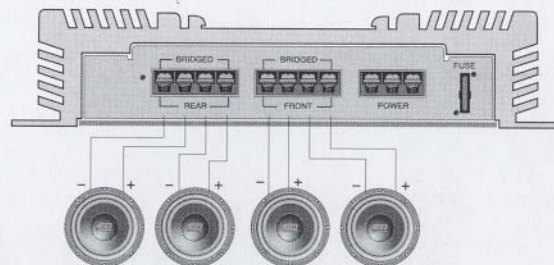
CFA142, 202, 302, 402, 602

3 Channel Operation (Stereo/Mono)



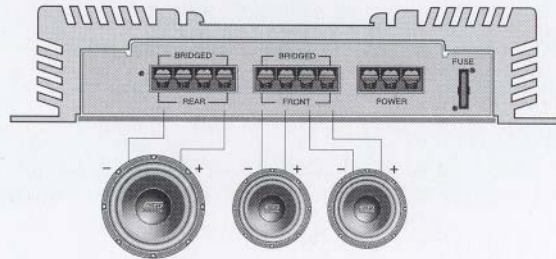
CFA142, 202, 302, 402, 602

4 Channel Operation (Stereo Mode)



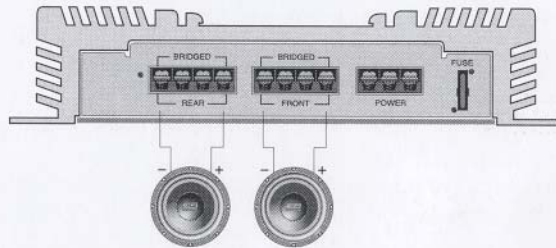
CFA354, CFA404

3 Channel Operation (Mono & Stereo)



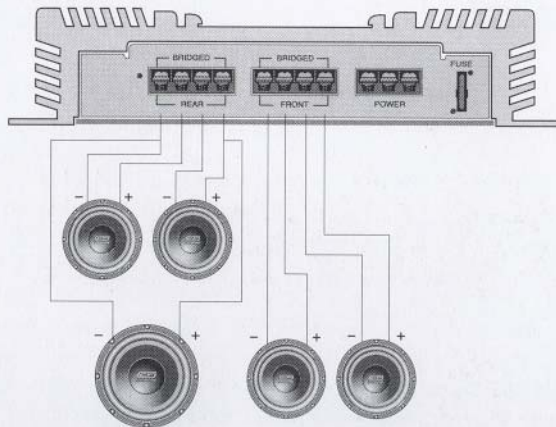
CFA354, CFA404

2 Channel Operation (Bridge Mono Mode)



CFA354, CFA404

5 Channel Operation (Stereo/Mono & Stereo)



CFA354, CFA404

SIGNAL INPUTS

CROSSFIRE amplifiers have two different types of inputs: Low level inputs through RCA jacks and high level inputs through a four pin modular connector (except for the CFA 602 which does not have high level inputs). Low level inputs provide an exceptionally clean sound from a source unit that accepts RCA jacks. High level inputs make your **CROSSFIRE** amplifier virtually adaptable to any source unit through the use of speaker outputs. **High level inputs should only be used when RCA outputs are not available. Under no circumstances should both low level and high level inputs be used simultaneously.**

LOW LEVEL INPUTS

Choose the correct length and style of RCA patch cables for your needs. Better RCA's usually have gold plated connectors and multiple layers of shielding for better noise rejection (consult your dealer).

Be extra careful when running your RCA patch cables. Car environments are notorious for poorly insulated wires. This means that hiss, engine noise, and fan noise can easily be picked up through RCA cables if ran incorrectly. Avoid running your RCA's near large wire looms and electric fans if possible. Run your patch cables on the opposite side of the vehicle as you did the power wire. Be sure to check for correct balance (red is right and black or white is left).

HIGH LEVEL INPUTS

Use the high level inputs only if your current source unit does not have low level inputs. These inputs may be tapped to the closest left and right speaker wire available for greater convenience. (see diagram for hook-up)

GAIN CONTROL

Next to the inputs, on the left panel of the amplifier, is the gain control (marked **level**). This control allows you to match the input level of the amplifier to the output level of your source unit. Matching the input can be accomplished in three simple steps:

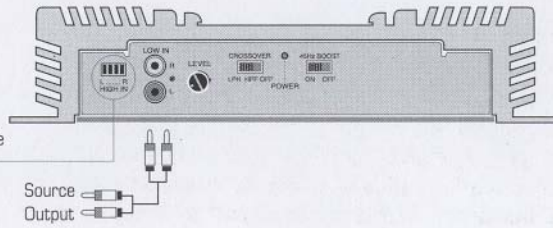
1. Turn gain control all the way down.
2. Turn on the source unit and adjust to 2/3 of max volume.
3. Adjust the gain control until desired volume is achieved without audible distortion

Remember, the gain control is not a volume knob. Ignoring the three steps above may leave you with damaged speakers and possibly a damaged amplifier.

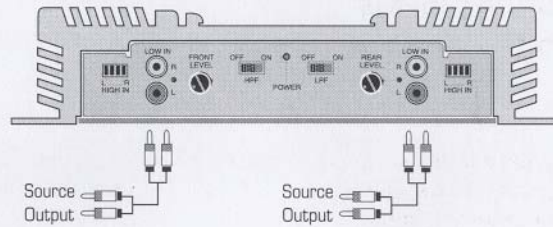
LOW LEVEL INPUTS

MODEL :
CFA142 / 202 / 302 / 402 / 602

This function is not applicable on the CFA 602

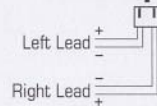


MODEL : CFA354/CFA404

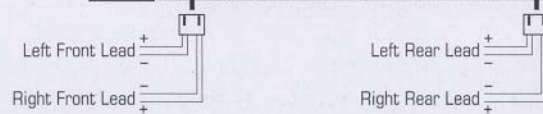


HIGH LEVEL INPUTS

MODEL :
CFA142 / 202 / 302 / 402



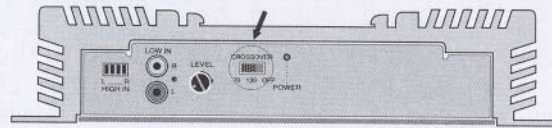
MODEL : CFA354/CFA404



CROSSOVER

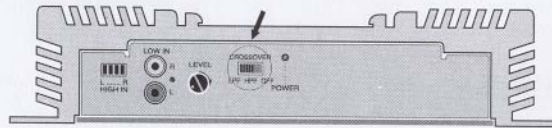
MODEL : CFA602 / 402 /

- 70 120 OFF : 100Hz Low Pass Filter
- 70 120 OFF : 70Hz Low Pass Filter
- 70 120 OFF : Full Range Frequency



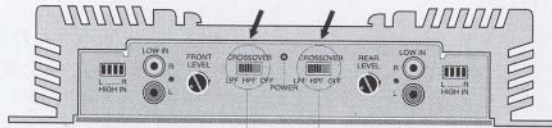
MODEL : CFA142 / 202 / 302

- LPF HPF OFF : 120Hz High Pass Filter
- LPF HPF OFF : 70Hz Low Pass Filter
- LPF HPF OFF : Full Range Frequency



MODEL : CFA354/CFA404

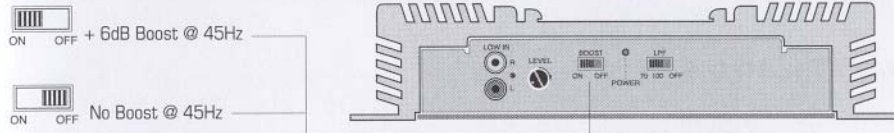
- LPF HPF OFF : 120Hz High Pass Filter
- LPF HPF OFF : 70Hz Low Pass Filter
- LPF HPF OFF : Full Range Frequency



SPECIAL FEATURES

BOOST

For added low bass response, **CROSSFIRE** has an added subwoofer boost switch that will help compensate for system lacking in sub-bass (see diagram below). This switch in the ON position will add 6dB of boost centering around 45Hz. In the OFF position, no boost is added to the output signal. This boost switch is available on all **CROSSFIRE** amplifiers with the exception of the CFA142, CFA404, and CFA390M. **CROSSFIRE** does not recommend using this feature in systems without subwoofers.



CFA390M MONOBLOCK

OPERATION

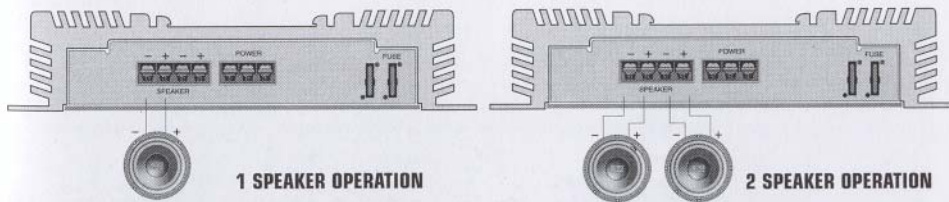
The CFA 390M is a dedicated subwoofer amplifier. Unlike other **CROSSFIRE** amplifiers, the CFA 390M operates only in a single channel. It is however capable of powering a pair of 4 ohm subwoofers with ease.

LOAD

When purchasing your subwoofers, keep in mind that the CFA 390M requires a minimum impedance of 2 ohms to operate trouble free. Too low of an impedance will send your amplifier into protect mode and possibly damage it.

WIRING

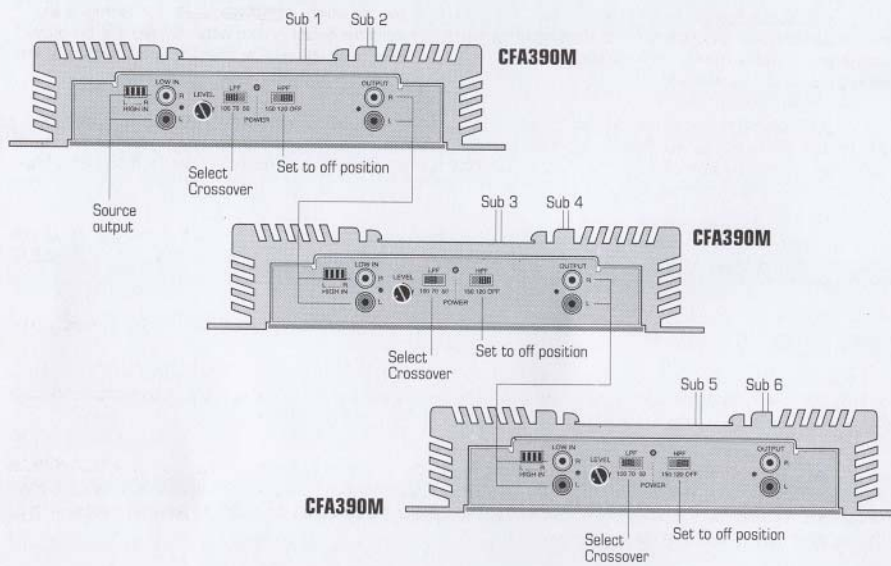
For easier installation, **CROSSFIRE** has equipped the CFA 390M with two output terminals. These terminals are paralleled internally, therefore you do not have to parallel the wires on a pair of subwoofers outside of the amplifier. See the graphs below for hookup.



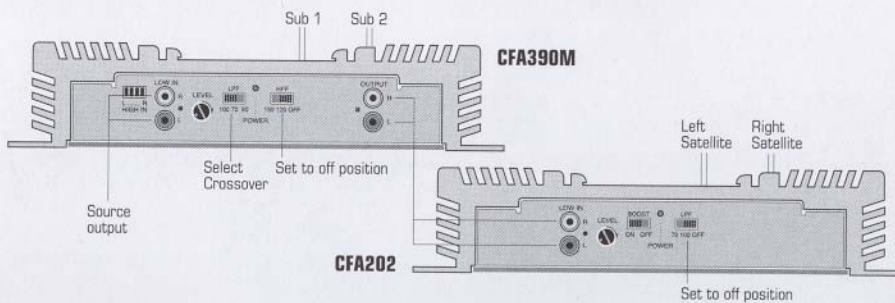
RCA OUTPUT

Special only to the CFA390M monoblock amplifier is a RCA output port. This RCA output has a built-in crossover and can be used in two ways:

1. The output may be used to daisy-chain CFA390M's when used in large subwoofer systems. Just set the onboard highpass crossover to the OFF position and set the lowpass crossover to 50/70/100Hz on each of the amplifiers.



2. The output may be used to with the onboard crossover as a highpass output to your satellite amplifier. Just set the highpass crossover for the output to 120 or 150Hz and eliminate the need for to purchase a two way crossover.



CROSSFIRE LIMITED WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This Warranty is only valid on **CROSSFIRE** products purchased in the U.S.A. from an authorized **CROSSFIRE** dealer.

All **CROSSFIRE** products are warranted to be free from defects in materials and workmanship under normal use and serviced for a period of (2) years when the unit is installed by an authorized **CROSSFIRE** dealer.

Non-authorized dealer installed products carry a (1) year parts and labor limited warranty.

The extent and conditions of **CROSSFIRE**'s limited warranty are as follow:

I. **CROSSFIRE** will either repair or replace (at its option) any unit which **CROSSFIRE** has examined and found to be defective and under warranty, to the original purchaser, provided the defect occurs within (2) years of the date of purchase when the unit is installed by an authorized **CROSSFIRE** dealer. This warranty includes both parts and labor and applies to the original purchaser only.

II. **CROSSFIRE** will either repair or replace (at its option) any unit which **CROSSFIRE** has examined and found to be defective and under warranty, to the original purchaser, provided the defect occurs within (1) years of the date of purchase when the unit is installed by a non-authorized **CROSSFIRE** dealer. This warranty includes both parts and labor and applies to the original purchaser only.

III. This warranty will be void to any unit found with the original factory serial number removed, altered or defaced. All units received by **CROSSFIRE** for warranty with their original serial numbers removed will not be repaired and returned to sender freight collect.

IV. This provisions of this warranty shall not apply to products used for any industrial, professional or commercial purpose or any other uses for which it was not designed.

V. This warranty does not cover costs for removal of product for repair or reinstallation of the product after repair, nor does it cover the cost of returning the product to **CROSSFIRE**'s service center for repair.

VI. This warranty does not apply to repairs or replacements necessitated by any cause beyond the control of **CROSSFIRE** including, but not limited to, any malfunction, defect or failure caused by or resulting from unauthorized service or parts, improper maintenance, operation contrary to furnished instructions, shipping or transit accidents, incorrect power line voltages, fire, flood or any other acts of nature, or normal wear and tear.

VII. The foregoing is in lieu of all other expressed warranties and **CROSSFIRE** does not assume or authorize any party to assume for it any other obligation or liability. The duration of any warranties which may be implied by law (including the warranties of merchantability and fitness) is limited to the term of this warranty. In no event shall **CROSSFIRE** be liable for special, incidental or consequential damages arising from obligations under this warranty due to cause beyond its control. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusions or limitation of consequential damages, so the above limitations and exclusions may not apply to you.

VIII. Return Policy

Your unit will be serviced free of charges on an in-warranty basis only. If improper operation occurs, contact your authorized **CROSSFIRE** dealer for assistance with the return and factory repair of your **CROSSFIRE** product. If an authorized **CROSSFIRE** dealer is not available, the following procedure must be followed: phone (562-483-8111) or fax (562-483-8106) in your name, address, telephone number and the model number of the item to be returned to receive a return authorization number. Your return authorization number must be clearly written on the outside of the packing box returned to **CROSSFIRE**. All returned products must be accompanied by a dated purchase invoice or the product may be subject to costs of parts and labor. Return the unit, prepaid postage, in the original protective carton or a carton with ample protection. Please include a brief description of the problem and send your repair to:

CROSSFIRE
12737 Moore Street,
Cerritos, CA 90703

CROSSFIRE

**12737 Moore Street,
Cerritos, CA 90703**

