TROUBLE SHOOTING THE SYSTEM

We have put together this trouble-shooting guide if you experience problems after installing the crossover. Please keep in mind that the majority of problems incurred are caused by improper installation and not the equipment itself. In addition, there are many components in the system that could cause various signal problems such as inducted electrical noise and engine noise.

Before you can properly address the problem, you must first find the component that is causing the problem. This will take patience and process of elimination.

LOOK FOR....	SOLUTION
No Output	
Blown fuse	Replace
Bad RCA Cable(s)	Replace
+12V at power terminal	Check connection
+12V at remote terminal	Check connection
Grounding point clean and tight	Check for ground w/meter
Head Unit's fader not in center position	Set to center position
Low Output	
Check level adjustments	Re-adjust
Bad RCA cables(s)	Replace
Improper level matching	Re-adjust
Engine Noise	
Grounding points are clean and tight	Check for ground w/meter
Ground all components at same point	Ground at same point
Try different grounding point	Change for better ground
Bad RCA cable(s)	Replace
Use High Quality shielded RCA cable	Rejects inducted noise
Low Vehicle charging system and /or battery	Fix and / or replace

TECHNOLOGY STATUS AUDIO AND POWER

OWNERS MANUAL

Professional Car Audio

ST-CROSS5V

- We greatly appreciate your purchase of the unit.
- Be sure to take maximum advantage of all the unit has to offer, read these instructions carefully and set properly. Be sure to keep this manual for future reference, should any questions or problems arise.

Dear customer,

Congratulations on acquiring your crossover!
You've just purchased a product of high quality and technology.
The MTE products are developed to assure maximum efficiency and reliability to your sound system.

Electronic Crossover ST-CROSS5V

The crossover ST-CROSS5V was developed to perform frequency adjustments in sound systems through active electronic filters. These filters provide an improvement both in the quality and in the efficiency of the sound system, resulting in a better performance of the speakers.

Important info:

- Read this manual and follow its instructions and info carefully. It contains extremely important information to have your crossover working properly.

- To prevent injuries to the user or damage to the amplifier, read all the safety instructions written on this manual;

- If you're insecure about the installation of this equipment, get in touch with our tech support or with a professional specialized in car audio installation;

AJUSTING THE HP AND LP FILTERS:

High pass filter: blocks frequencies below the set value with attenuation of 12 dB/oct;
Low pass filter: blocks frequencies above the set value with attenuation of 12dB/oct.

From the experience of our technical consultants who assist in adjusting the sound systems of our customers, we created a guide with some suggestions for signal cuts and signal ways of use in ST-CROSS5V. However, we advise that for better information on the ideal cut-off frequencies for your sound system, refer to the manufacturer of your speakers and audio equipment. Suggestions therefore are not rule and may change according to each system and costumer desire, but serve as a reference in case of doubt.

Mid High Output : The Mid High Output receives audio signal through the Front In, the following settings are possible in this way: HPF, LPF, Level adjustment and On / Off switch (mute).

- HPF: High pass filter of 12dB/oct, with variable adjustment between 550Hz and 3kHz;
- LPF: Low pass filter of 12dB/oct with variable adjustment between 4 kHz e 20kHz;
- Level Adjustment: Adjusts the audio signal level of the used way;
- On/Off Switchkey: Lets you turn off the audio signal of the way, without changing its Level.

High Output: The High Output receives audio signal through the Front In, the following settings are possible in this way: HPF, LPF, Level adjustment and On / Off switch (mute). This way doesn't have LPF, having returns up to 100kHz.

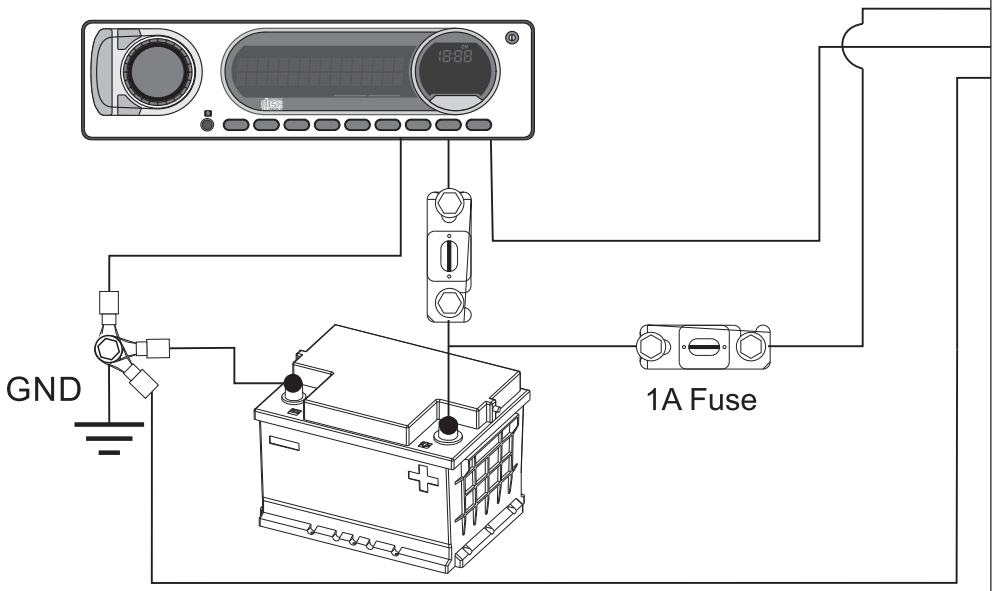
- HPF (High pass filter): Of 12dB/oct, with variable adjustment up to 100kHz;
- Level Adjustment: Adjusts the audio signal level of the used way;
- On/Off Switch key: Lets you turn off the audio signal the way, without changing the Level.

- Before proceeding with the installation of any electric equipment in your vehicle, unplug the negative (-) terminal of the battery to avoid fires, injuries or damages.
- Use your sound system safely. The continuous exposure to sound pressure over 85 dB may cause irreversible hearing damage.
- The location of installation is very important. Please install your ST-CROSS5V in a solid location with little vibration. It is not recommended to install it directly on subwoofer boxes
- Use shielded RCA cables to avoid the chance of getting any noise in your sound system
- Install and wrap the cables properly, away from any sharp parts of the chassis. Make sure to install the RCA cables separate from power cable, speaker cable or any electric equipment such as fuel injection centrals, for example.

ST-CROSS5V Power Connections

At least 1.5mm² (15 AWG) cable is needed for the power connections of the positive (+) and negative (GND) of your Crossover MGS-2503C. For the remote (REM), a 0.5mm² (20 AWG) minimum is needed.

The positive cable should be connected to the the positive (+) of the battery through a 1 ampere fuse installed close to the battery. The negative (GND) cable should be connected to the negative (-) of the battery or to the ground spot closest to the amplifier, in order to avoid unwanted noises on your sound system.



- **Mid Low Output:** This way receives signal from the Front in audio input, the following settings are possible: HPF, LPF, Level Adjust e On/Off key.

- **HPF:** High Pass Filters, of 12dB/oct, with variable adjustment from 40Hz up to 400Hz;
- **LPF:** Low Pass Filter, of 12dB/oct with variable adjust from 200Hz up to 5 kHz;
- **Level Adjust:** Adjusts the level of the audio signal of the utilized way;
- **On/Off switch key**: Turns off the signal from the way, without changing the level setting.

Flat Output: The flat output has an level adjust, it dials the signal level on the audio output. Besides the level adjust, It has an On/Off switch key, enabling it to turn off the signal on the audio output without changing the level setting. This output receives signal from the front in and can be utilized on system's external connection, sending signal to another vehicle, for example.

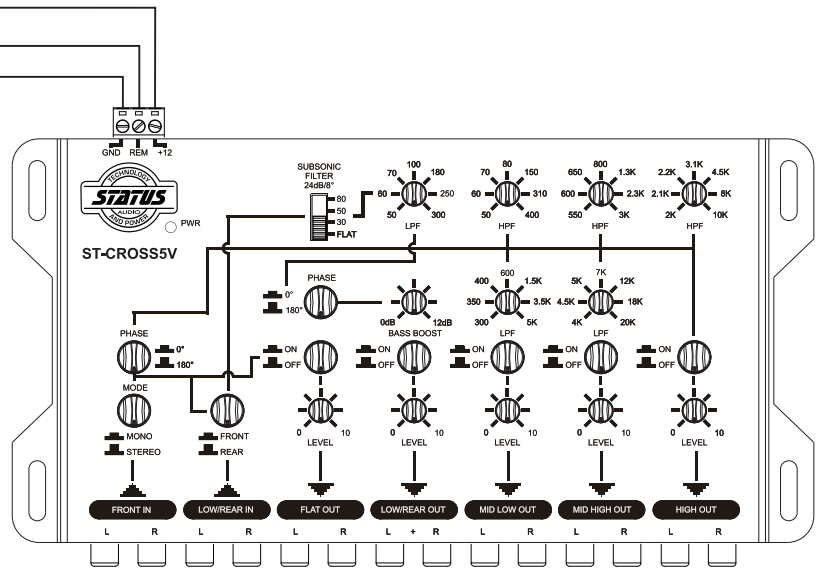
Low Output: the low output can receive audio signal either from the front in and from Low/Rear input, toggling the input by the Front/Rear switch key. After the signal origin for the Low channel is selected, there are the following adjustments: Subsonic Filter, 24dB/oct, LPF, phase key, bass boost adjusts, level adjust and On/Off key.

- Subsonic Filter 24dB/oct: Selects between the following Cutoffs: Flat, 30,50 or 80Hz;
- LPF: Low Pass Filter of 12dB/oct with variable adjust from 50Hz up to 300Hz;
- Phase key: Rotates the Signal's Phase of the Low output, 0º and 180º;
- Bass Boost: Variable adjust for bass enhacement from 0 to 12dB;
- Level Adjust: Ajusts the level of the áudio signal of the utilized way;
- On/Off switch key: Turns off the signal from the way, without changing the level setting.

The remote (REM) cable should be connected to the remote output of the CD/DVD player.

All of the connections be it power or RCA, must be done with the equipment off.

The ST-CROSS5V has an exclusive delay system, which keeps the internal circuitry energized for up to 10 seconds after shut off avoiding pop noises.



TECHNICAL SPECIFICATIONS OF ST-CROSS5V

- 5 way stereo analogic crossover;
- 1 Flat Output / 4 Variable Outputs;
- 12dB/oct filters;
- Level adjustments in all of the outputs;
- 24dB/oct subsonic filter in the Low/Rear output;
- Mute switch key in all of the outputs;
- 0/180° phase adjustment in the Mid low / Mid High / High outputs;
- 0/180° phase adjustment in the Low/Rear output;
- Front/rear input selection in the Low output;
- Bass boost adjustment in the Low output
- Frequency response (-1dB) 10Hz to 100kHz;
- Input impedance: 10K Ohms;
- Output impedance: 100 Ohms
- Current draw: 250mA
- Power input: 10V to 16V DC;
- Protection system: Polarity inversion;
- Channel separation: > 80dB;
- Harmonic distortion (THD): <0.02%;
- Max input level: 4V RMS;
- Max output level: 8.5V RMS;
- Weight: 1.8 lb;
- The mono/setero switch key adds up the Front L and R input channels.

In the Front In, we also have 2 (two) adjustment switch keys, a mono /stereo switch key and another Phase switch key. The mono /stereo switch key is used to mix (add) the input channels L and R into a mono signal that is sent to the outputs. In the stereo position, the stereo channels L and R are separated from the output channels. The Phase switch effects a 180° phase rotation on the audio signal from the Front In input, sending the Mid Low, Mid High and High outputs. This rotation is important in cases where you have another sound system connected to the Flat output of the ST-CROSS5V

By performing the phase rotation 0/180º we can avoid phase cancellations from one system to the other, having an add effect of the sound pressure. This feature is useful when you are linking multiple vehicles to play the same musical program.

The ST-CROSS5V crossover aims to divide and direct the musical signal according to each audio frequency range, sending this signal to the amplifiers and consequently to the loudspeakers. The correct frequency division guarantees the sound system a higher performance, since each type of loudspeaker works at different frequency ranges, in wich they perform best. In addition, the loudspeaker, by working only with suitable frequencies, gets the most protection avoiding accidental damage. When in doubt about the appropriate frequency cuts, always consult the loudspeaker manufacturer.

The ST-CROSS5V has two audio inputs called Front In and Low /Rear In. The Front In input is responsible for receiving audio signal and sending it to the Flat, Mid Low, Mid High, and High outputs. The Front In signal can also be directed to the Low channel through the switch key located just above the Low /Rear input; the Low /Rear input is used exclusively to send audio to the Low output. This input can be connected to the Rear or Sub outputs of the car radio if it is available in the device used. Connection to the Low /Rear input is not mandatory, and the Low output may also receive audio through the Front In. The Front /Rear switch is responsible for this switching.

Flat Output:
Infinite-level adjustment at 0dB;
On/Off mute switch key.

Low Output:
Flat 30/50/80 Hz 24dB/oct subsonic HPF selectable by switch key;
50 Hz to 300 Hz variable 12db/oct LPF;
0/180° phase adjustment made by switch key.
45Hz, 0 to +12dB bass boost adjustment;
Infinite-level adjustment at 0dB;
On/Off mute switch key.

Mid Low Output:
Front/Low input signal selection by switch key;
50 Hz to 400 Hz variable 12dB/oct HPF;
30 Hz to 5 kHz variable 12db/oct LPF;
Infinite-level adjustment at 0dB;
On/Off mute switch key.

Mid High Output:
550 Hz to 3 kHz variable 12dB/oct HPF;
4 kHz to 20 kHz variable 12db/oct LPF;
Infinite-level adjustment at 0dB;

High Output:
2 kHz to 10 kHz variable 12dB/oct HPF;
Infinite-level adjustment at 0dB;

ST-CROSS5V AUDIO INPUT AND OUTPUT CONNECTION