

SOUNDSTREAM
GRANITE

Granite 60.2,
Granite 120.4 and
Granite 180.6
POWER
AMPLIFIERS

**OWNER'S MANUAL &
INSTALLATION GUIDE**

CONGRATULATIONS

You now own the Soundstream Granite Amplifier, the result of a unique design and engineering philosophy.

To maximize the performance of your system, we recommend that you thoroughly acquaint yourself with its capabilities and features. Please retain this manual and your sales and installation receipts for future reference.

Soundstream amplifiers are the result of American craftsmanship and the highest quality control standards, and if properly installed, should provide you with many years of listening pleasure. Should your amplifier ever need service or replacement due to theft, please record the following information, which will help protect your investment.

Model _____

Serial Number _____

Dealer's Name _____

Date of Purchase _____

Installation Shop _____

Installation Date _____

CAUTION!

Prolonged listening at high levels may result in hearing loss. Even though your new Soundstream amplifier sounds better than anything you've ever heard, exercise caution to prevent hearing damage.

DESIGN FEATURES

- **Handcrafted** in the U.S.A. with mil-spec glass epoxy circuit boards, low-loss connections, gold plated input connectors, and metal film resistors.
- **Darlington High Current Discrete Output Topology** – Soundstream's "overbuilding" of the output section incorporates Darlington output devices sandwiched between the circuit board and the heat sink in a design called Chassisink™ to ensure cool, efficient amplifier operation.
- **Mixed Mono Capable so you** can simultaneously drive a stereo and mono load (satellites and subwoofer).
- **2 Ohm Drive Ability** – The Granite amplifiers are designed to drive loads all the way down to 2 Ohms stereo and 4 Ohms bridged.
- **Built-in Staggered Asymmetrical Crossovers** (Granite 120.4, Granite 180.6) – Built-in electronic crossovers are designed to compensate for the acoustics of the automobile environment. A high pass crossover (at 150 Hz @ 12 dB/octave) and low pass crossover (at 75 Hz @ 12 dB/octave) allow you to drive a complete subwoofer and satellite system without the use of passive crossovers.

- **Internal Signal Routing** (Granite 120.4, Granite 180.6) – Permits one pair of signal cables to drive all 4 channels (Granite 120.4) or two pairs of signal cables to drive all 6 channels (Granite 180.6).
 - **Drive Delay Muted Turn-on/off Circuit** – a unique circuit which completely eliminates any amplifier-related turn-on/off noises.
 - **Flexible Input Sensitivity** – accepts input voltages from 100 mV to 2.5 V, which permits maximum output from amplifier with virtually any source unit.
- ***“Balancing Act” Input Topology** for added immunity to ground loops caused by component and vehicle electrical system interaction.

WARRANTY

Your Granite amplifier comes with a limited warranty. Refer to the enclosed warranty card for length of warranty and conditions.

SPECIFICATIONS

POWER OUTPUT

	<i>Power into 4 Ohms</i>	<i>Power into 2 Ohms</i>	<i>Bridged Power into 4 Ohms</i>
Granite 60.2	30w x 2	50w x 2	100w x 1
Granite 120.4	30w x 4	50w x 4	100w x 2
<i>Granite</i> 180.6	30w x 6	50w x 6	100w x 3

THD < 0.1%, 20Hz–20kHz at rated power into 4 ohms

S/N Ratio >90 dB

Damping Factor >200

Input Sensitivity 100 mV – 2.5 V

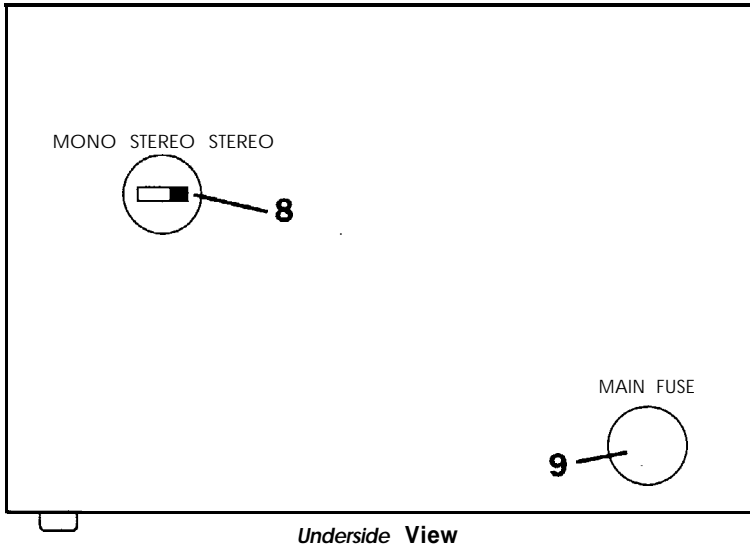
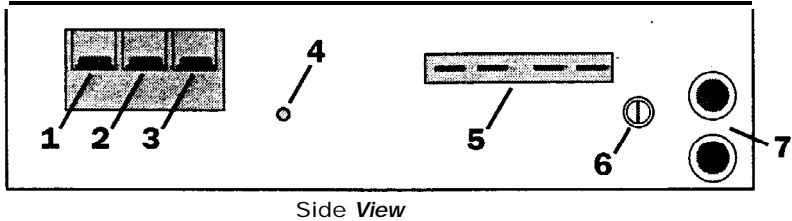
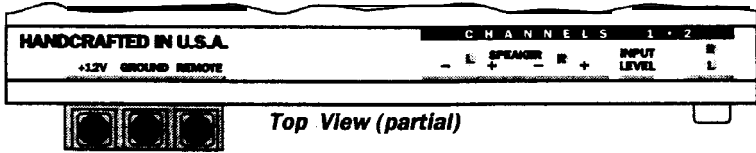
Dimensions (W x D x H)

Granite 60.2 7" x 8-3/16" x 2-3/16"

Granite 120.4 9-5/8" x 8-3/16" x 2-3/16"

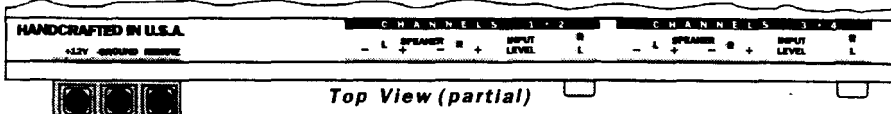
Granite 180.6 12" x 8-3/8" x 2-3/16"

GRANITE 60.2

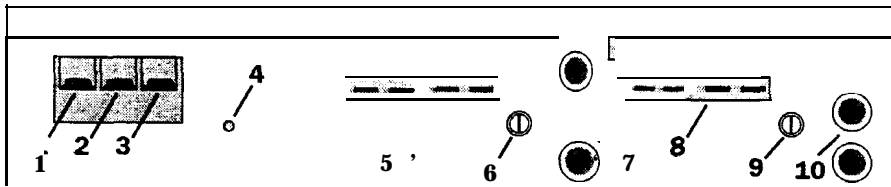


1. **+12V** – Connected to fuse or circuit breaker, then battery's positive post.
2. **Ground** – Main ground connection. Bolt to a clean chassis ground in the vehicle.
3. **Remote** – Remote turn-on input from the head unit. Accepts +12V.
4. **LED** – Indicates amplifier power on.
5. **Speaker Output Connections** – Channels (1 + 2)
6. **Input Level** – Variable from 100mV to 2.5V (Channels 1 + 2).
7. **Inputs** – Right and Left Channel inputs; only right channel input used in "Mono" position.
8. [underside] **Mono/Stereo/Stereo Switch** – Select "Mono" for bridged operation (only use right channel input) or either Stereo position for 2-channel Stereo or Mixed Mono operation.
9. [underside] **Main Fuse** – Main power supply fuse. Replace only with same value.

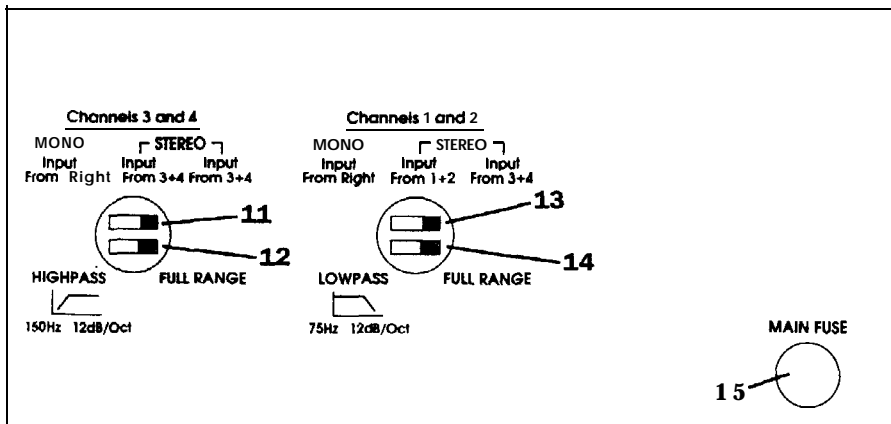
GRANILE120.4



Top View (partial)



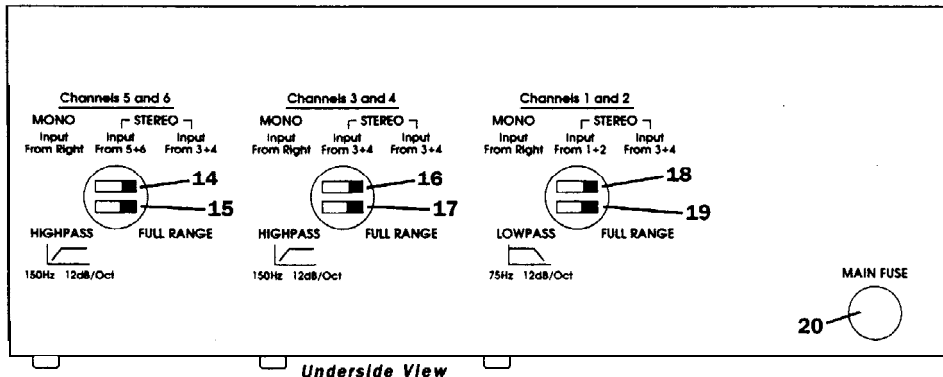
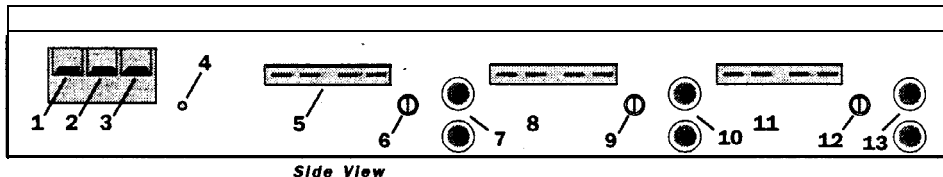
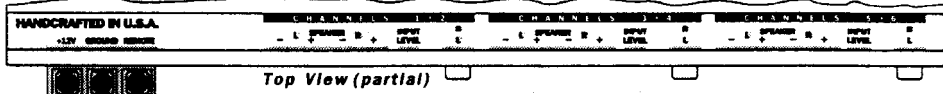
Side View



L-J Underside View

1. **+12V** - Connected to fuse or circuit breaker, then battery's positive post.
2. **Ground** - Main ground connection. Bolt to a clean chassis ground in the vehicle.
3. **Remote** - Remote turn-on input from the head unit. Accepts +12V.
4. **LED** - indicates amplifier power on.
5. **Speaker Output Connections** - Channels (1 + 2)
6. **Input Level** - Variable from 100mV to 2.5V (Channels 1 + 2).
7. **Inputs** - Standard RCA style connectors (Channels 1 + 2). Right channel only for mono.
8. **Speaker Output Connections** - (Channels 3 + 4)
9. **Input Level -Variable** from 100mV to 2.5V (Channels 3 + 4).
10. **Inputs** - Standard RCA style connectors (Channels 3 + 4). Right channel only for mono.
11. [*underside*] **Channels 3 + 4 Mono/ Stereo (input 3 + 4) / Stereo (input 3 + 4) Switch**
MONO position for single channel operation (only right channel is active in Mono). Use either STEREO input position with RCA inputs from Channels 3 + 4.
12. [*underside*] **Channels 3 + 4 Crossover** - Select either full range or high pass (150Hz, 12dB/octave) operation.
13. [*underside*] **Channels 1 + 2 Mono/Stereo (input 1 + 2) / Stereo (input 3 + 4) Switch**
MONO position for single channel operation (only right channel is active in Mono). Use "STEREO 1+2" for RCA inputs 1+2. Use "STEREO 3+4" for RCA input 3+4.
14. [*underside*] **Channels 1 + 2 Crossover** - Select either full range or low pass (75Hz, 12dB/octave) operation.
15. [*underside*] **Main Fuse** - Main power supply fuse, replace only with same value.

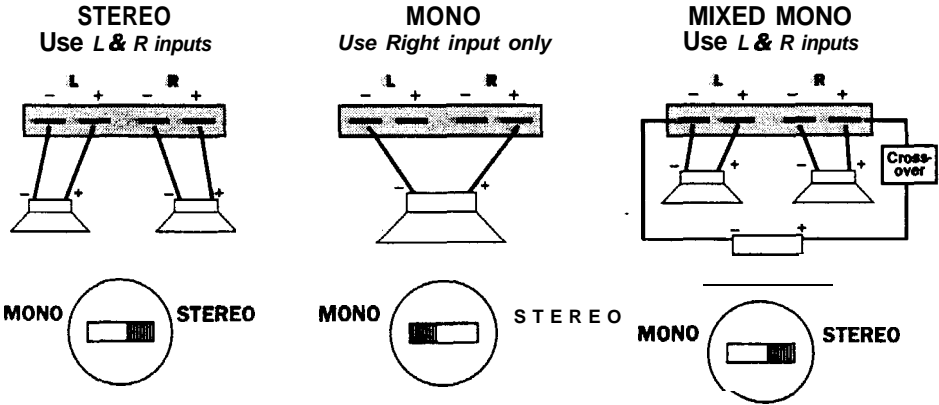
GRANITE180.6



1. **+12V** – Connected to fuse or circuit breaker, then battery's positive post.
2. **Ground** – Main ground connection. Bolt to a clean chassis ground in the vehicle.
3. **Remote** – Remote turn-on input from the head unit. Accepts +12V
4. **LED** – Indicates amplifier power on.
5. **Speaker Output Connections** – Channels (1 + 2)
6. **Input Level** – Variable from 100mV to 2.5V (Channels 1 + 2).
7. **Inputs** – Standard RCA-type connectors (Channels 1 + 2). Use only right channel for mono.
8. **Speaker Output Connections** – (Channels 3 + 4)
9. **input Level** – Variable from 100mV to 2.5V (Channels 3 + 4).
10. **Inputs** – Standard RCA-type connectors (Channels 3 + 4). Use only right channel for mono.
11. **Speaker Output Connections** – (Channels 5 + 6)
12. **Input Level -Variable** from 100mV to 2.5V (Channels 5 + 6).
13. **Inputs** – Standard RCA-type connectors (Channels 5 + 6). Use only right channel for mono.
14. [underside] **Channels 5 + 6 Mono/Stereo (input 5 + 6) / Stereo (input 3 + 4) Switch** MONO position for single channel operation. (Only right channel is active in Mono) Use "STEREO 5+6" for RCA inputs 5+6. Use "STEREO 3+4" for input from RCAs 3+4.
15. [underside] **Channels 5 + 6 Crossover** – Full range or high pass (150Hz, 12dB/octave).
16. [underside] **Channels 3 + 4 Mono/Stereo (input 3 + 4) / Stereo (Input 3 + 4) Switch** MONO position for single channel operation. (Only right channel is active in Mono) Use either STEREO input position with RCA inputs from Channels 3 + 4.
17. [underside] **Channels 3 + 4 Crossover** – Full range or high pass (150Hz, 12dB/octave).
18. [underside] **Channels 1 + 2 Mono/Stereo (input 1 + 2) / Stereo (input 3 + 4) Switch** MONO position for single channel operation (only right channel is active in Mono). Use "STEREO 1+2" for RCA inputs 1+2. Use "STEREO 3+4" for input from RCAs 3+4.
19. [underside] **Channels 1 + 2 Crossover** – Full range or low pass (75Hz, 12dB/octave).
20. [underside] **Main Fuse** – Main power supply fuse, replace only with same value.

SPEAKER WIRING CONFIGURATIONS

(per pair of channels)



SWITCH SETTINGS (bottom of amp)

For each pair of channels, there are two switches (one on 60.2) accessible from the bottom of the amplifier.

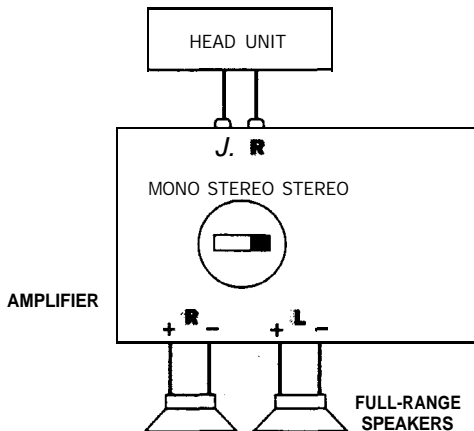
Mono/Stereo Switch: Set to "Mono" to bridge one pair of channels into a single channel. Only Right channel input is active. When in "Stereo," a mono channel can be driven using Left - & Right + speaker outputs.

Crossover Switch (Granite 120.4, Granite 180.6): Defeatable high or low pass crossover. Frequencies are set at 150 Hz, 12 dB/octave on the high pass and 75 Hz, 12 dB/octave on the low pass.

SAMPLE SYSTEMS

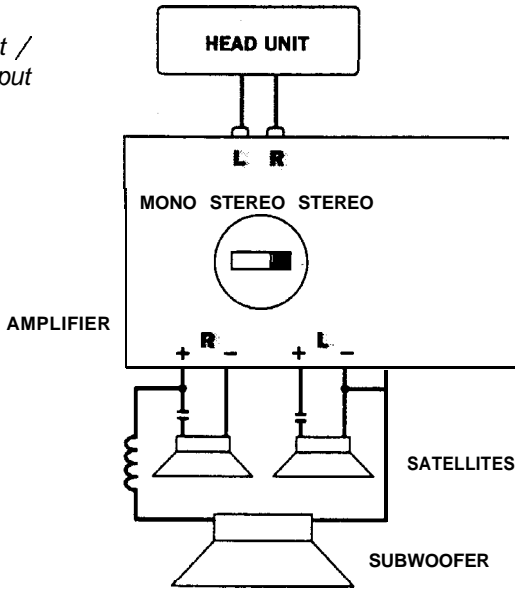
Following are several possible system configurations driven by a single or two bridged Granite amplifiers.

- Granite 60.2**
2 Channel Input /
2 Channel Output



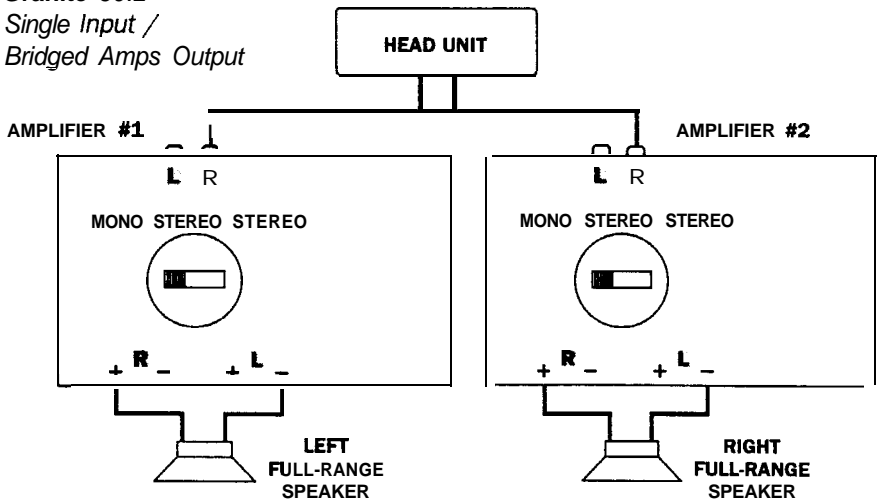
2. Granite 60.2

2 Channel Input /
3 Channel Output



3. Granite 60.2

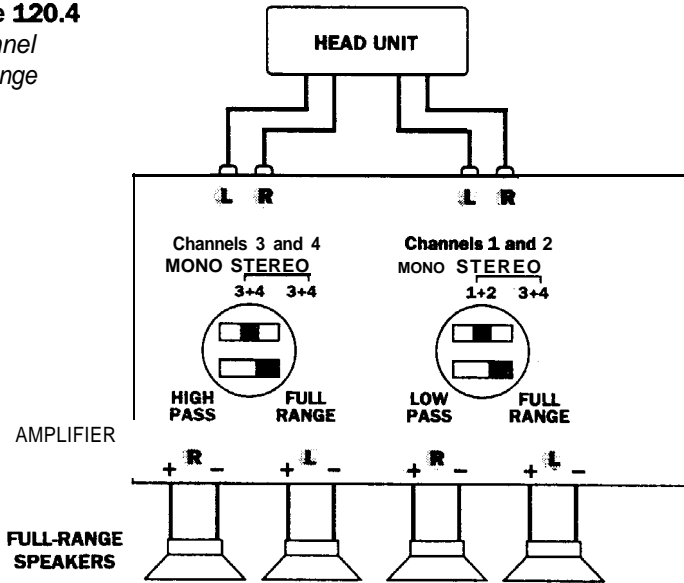
Single Input /
Bridged Amps Output



4. Granite 120.4

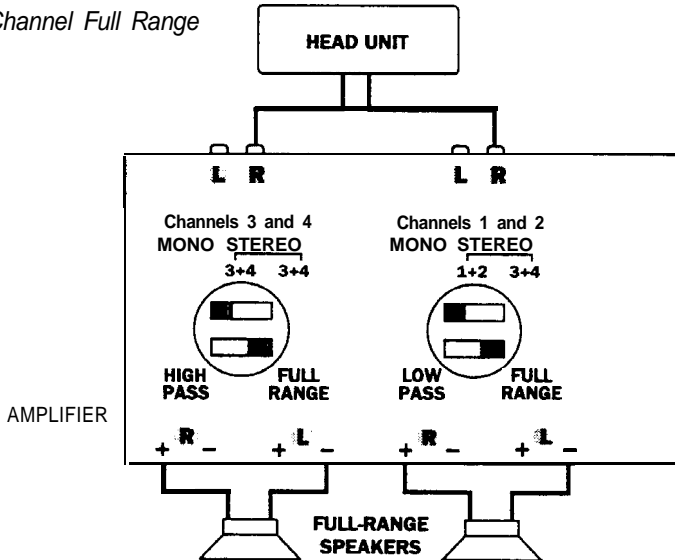
4 Channel

Full Range



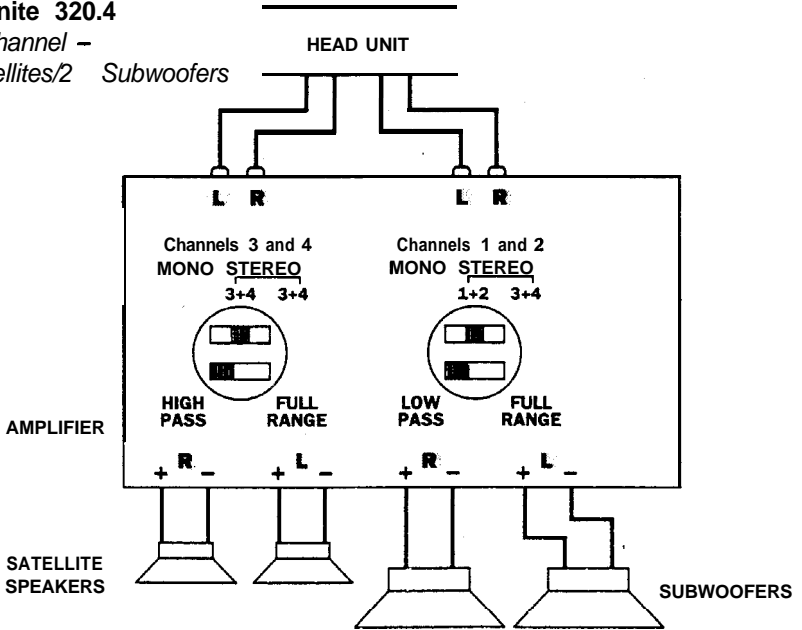
5. Granite 120.4

2 Channel Full Range



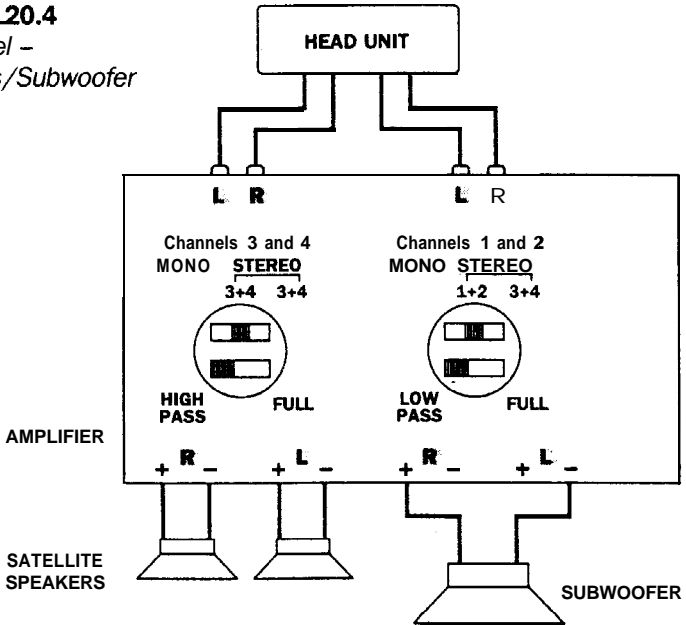
6. Granite 320.4

4 Channel –
Satellites/2 Subwoofers

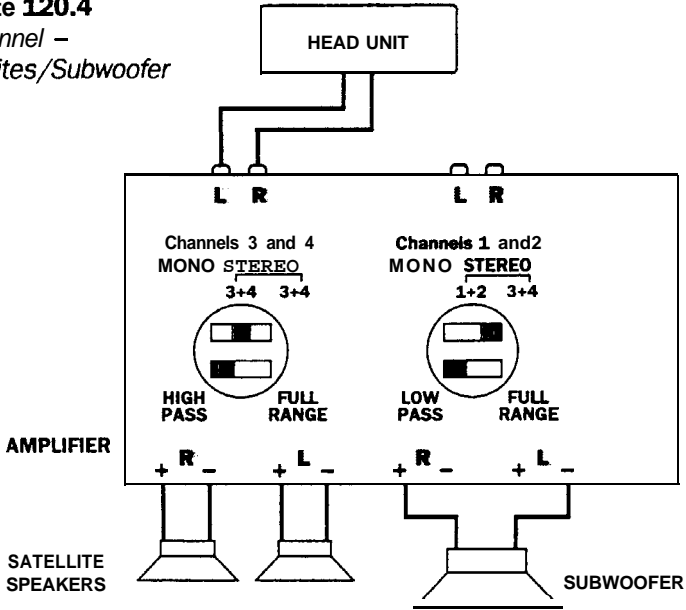


7. Granite 120.4

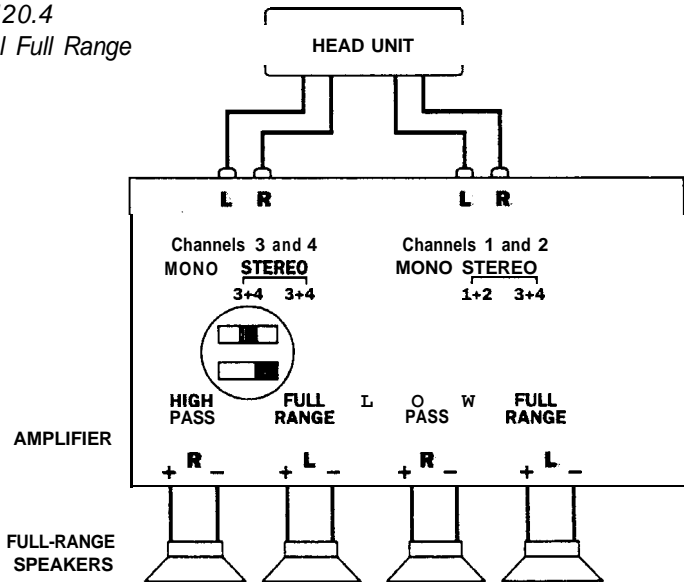
3 Channel –
Satellites/Subwoofer



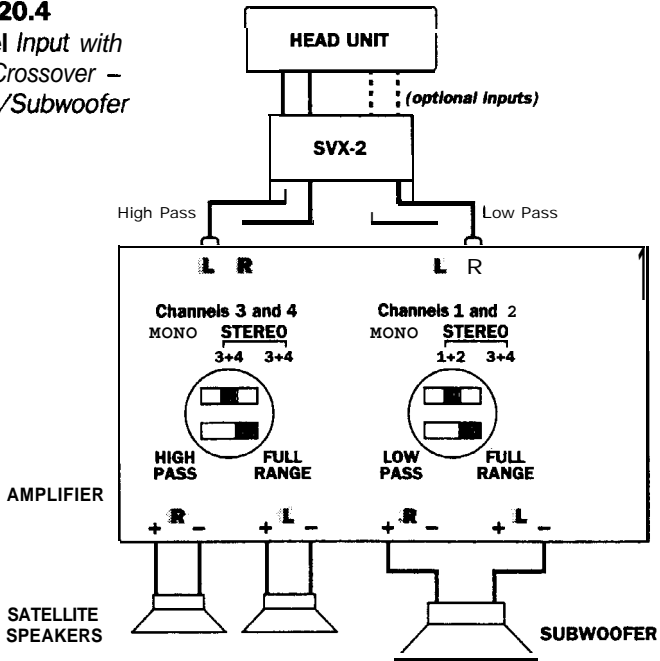
8. Granite 120.4
 2 Channel –
 Satellites/Subwoofer



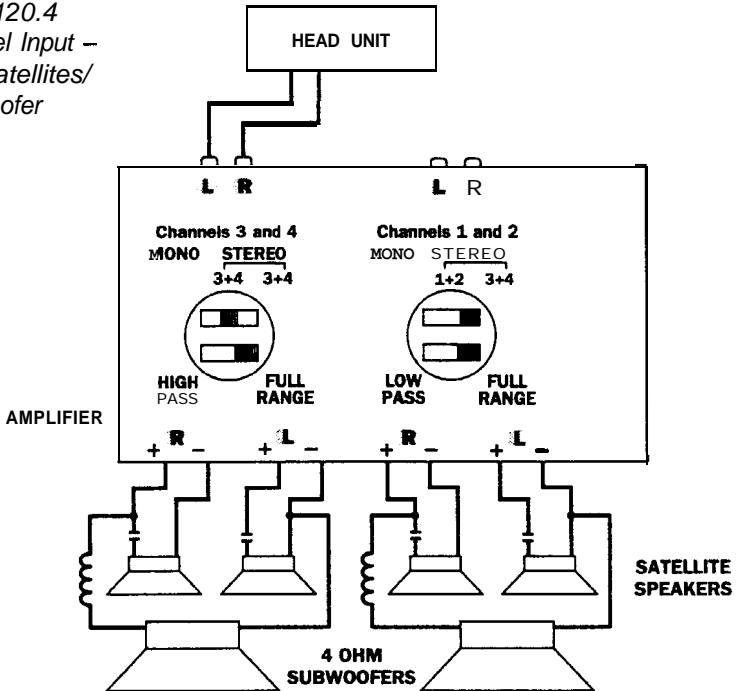
9. Granite 120.4
 4 Channel Full Range



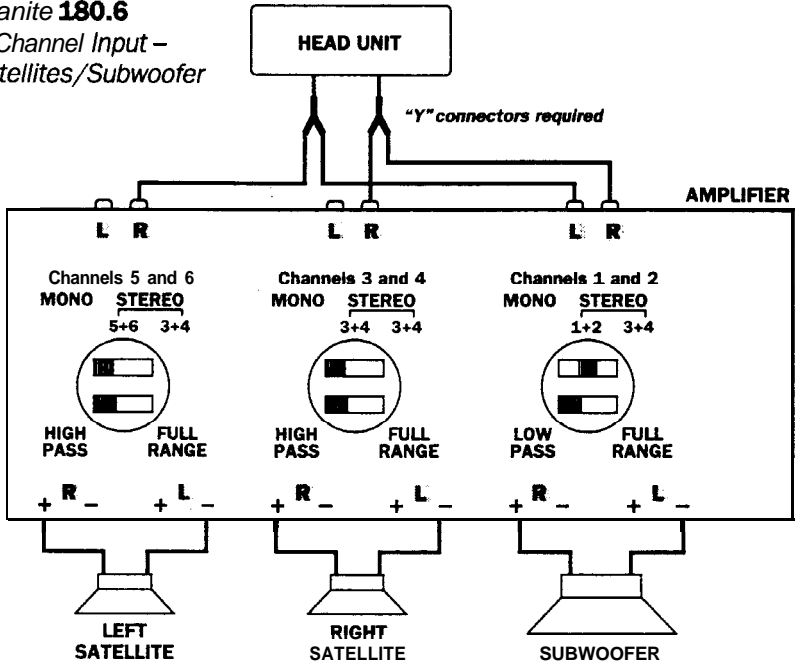
10. Granite 120.4
 2 Channel Input with
 External Crossover –
 Satellites/Subwoofer



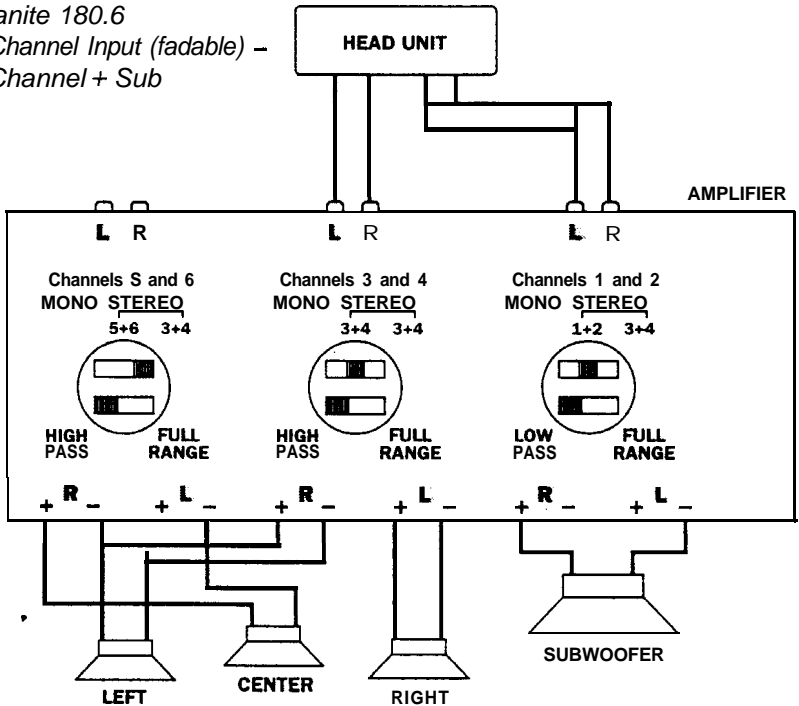
11. Granite 120.4
 2 Channel Input –
 2 pair Satellites/
 2 Subwoofers



12. Granite 180.6
 2 Channel Input –
 Satellites/Subwoofer

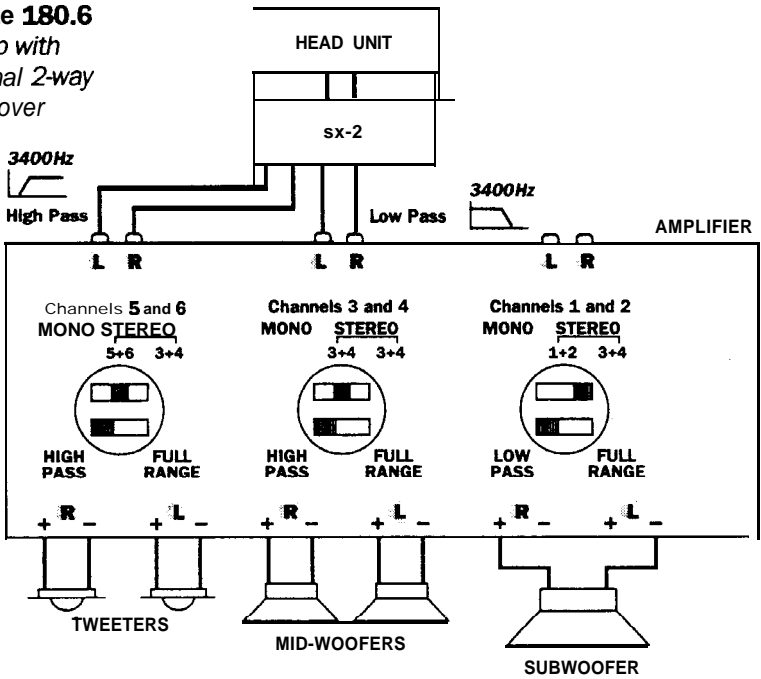


13. Granite 180.6
 4 Channel Input (fadable) –
 3 Channel + Sub



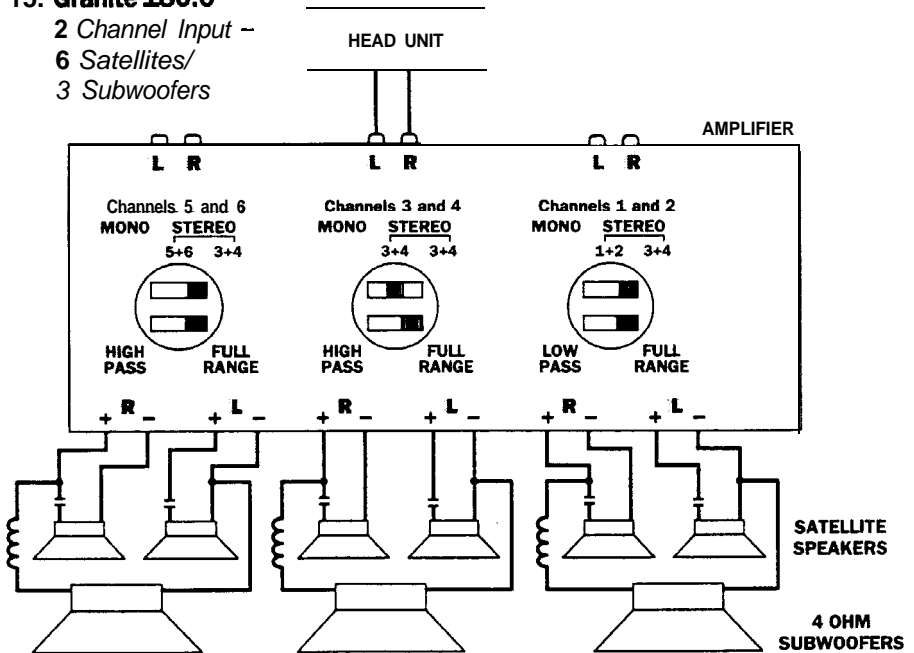
14. Granite 180.6

*Triamp with
External 2-way
Crossover*



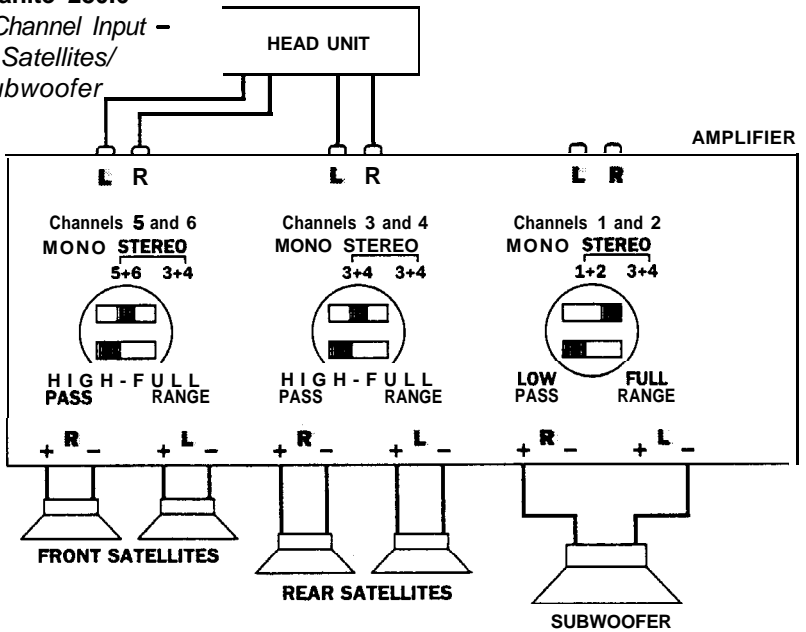
15. Granite 180.6

*2 Channel Input -
6 Satellites/
3 Subwoofers*



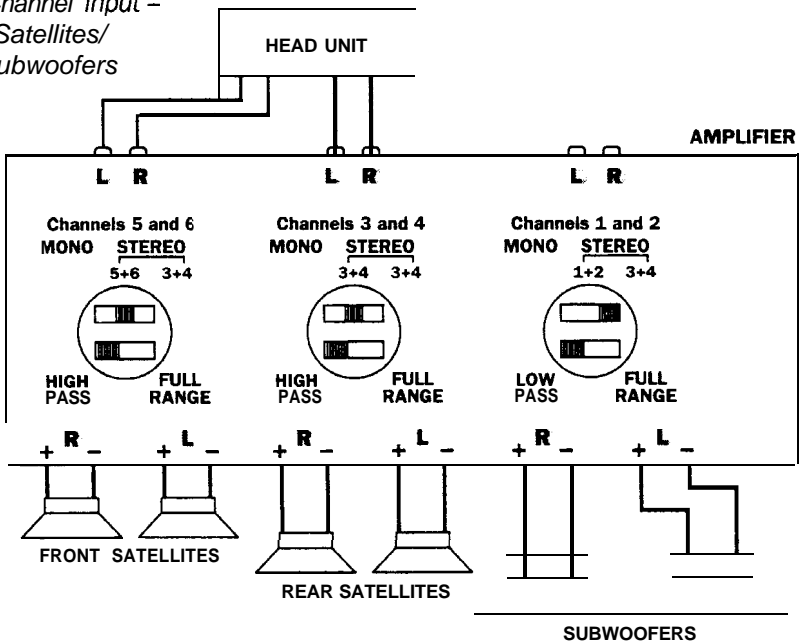
16. Granite 280.6

4 Channel Input -
4 Satellites/
Subwoofer



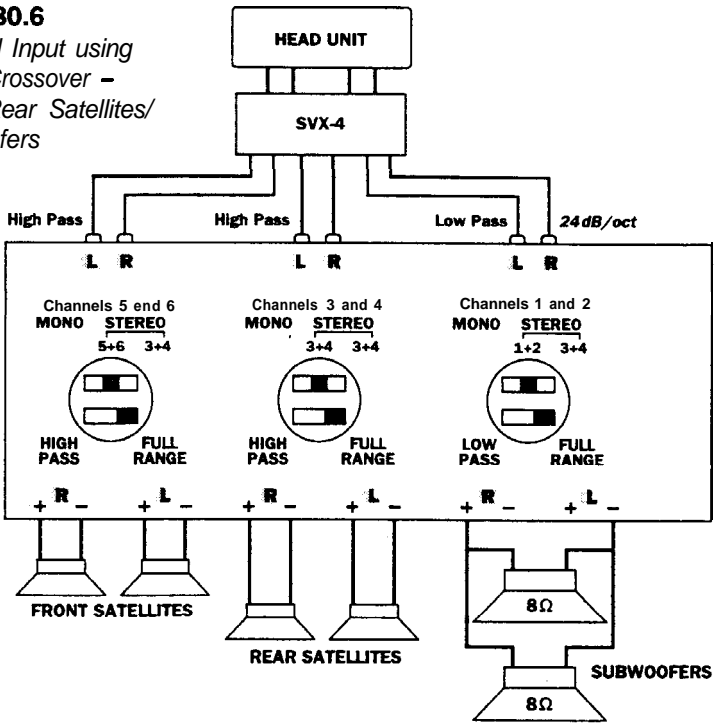
17. Granite 180.6

4 Channel Input -
4 Satellites/
2 Subwoofers



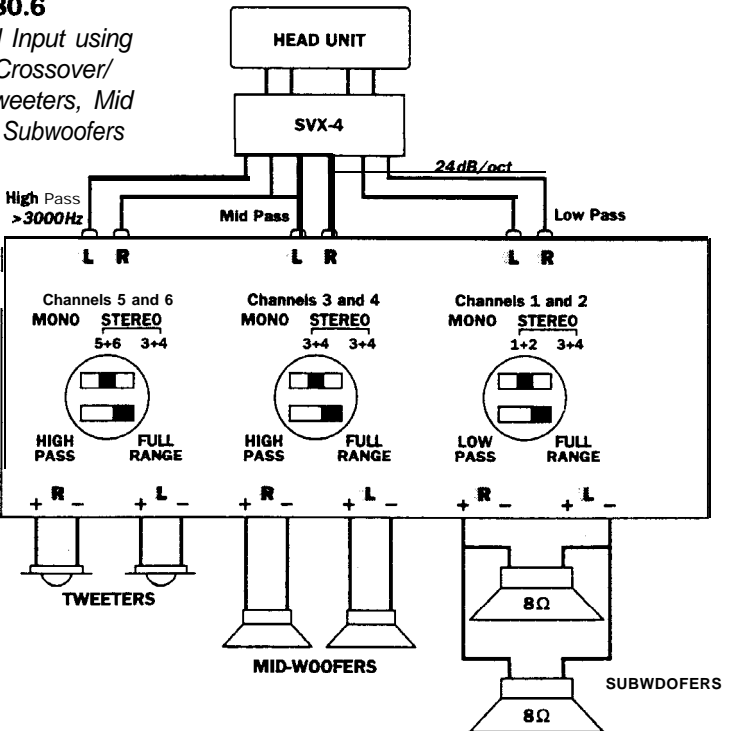
18. Granite 180.6

6 Channel Input using
External Crossover -
Front & Rear Satellites/
2 Subwoofers



19. Granite 180.6

6 Channel Input using
External Crossover/
Triamp Tweeters, Mid
Woofers, Subwoofers



PASSIVE AND ELECTRONIC CROSSOVERS

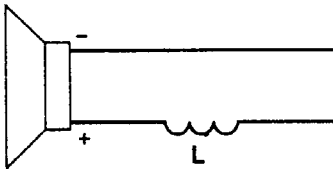
Your Granite amplifier is capable of driving a complete subwoofer and satellite system in the Mixed Mono configuration. However, for the lowest distortion and the maximum output and sound quality, we recommend that you use electronic crossovers and multiple channels of amplification, as provided in the Granite 120.4 and the Granite 180.6.

If only two channels of your Granite amplifier are going to be used to drive a subwoofer and satellite system, passive high and low pass crossovers will be necessary. Use the following charts to determine the values of the crossover components.

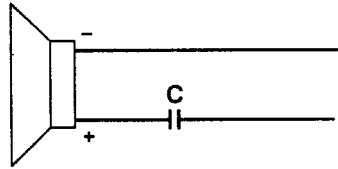
6 dB/Octave Passive Crossover Chart

KEY: L = high quality (DCR < 1 Ohm) inductor/coil

C = nonpolarized 50v (or greater) capacitor



6 dB/Octave Low Pass



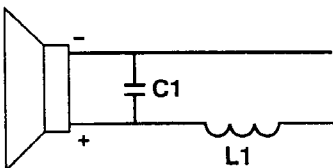
6 dB/Octave High Pass

FREQ	2 Ohms		4 Ohms		8 Ohms	
	L	C	L	C	L	C
80Hz	4.1mH	1000µF	8.2mH	500µF	16mH	250µF
100Hz	3.1mH	800µF	6.2mH	400µF	12mH	200µF
130Hz	2.4mH	600µF	4.7mH	300µF	10mH	150µF
200Hz	1.6mH	400µF	3.3mH	200µF	6.8mH	100µF
260Hz	1.2mH	300µF	2.4mH	150µF	4.7mH	75µF
400Hz	0.8mH	200µF	1.6mH	100µF	3.3mH	50µF
600Hz	0.5mH	136µF	1.0mH	68µF	2.0mH	33µF
800Hz	0.41mH	100µF	0.82mH	50µF	1.6mH	26µF
1000Hz	0.31mH	78µF	0.62mH	39µF	1.2mH	20µF
1200Hz	0.25mH	66µF	0.51mH	33µF	1.0mH	16µF
1800Hz	0.16mH	44µF	0.33mH	22µF	0.68mH	10µF
4000Hz	0.08mH	20µF	0.16mH	10µF	0.33mH	5µF

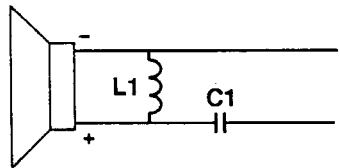
12db/Octave Passive Crossover Chart

KEY: L1 = high quality (DCR < 1 Ohm) inductor/coil

C1 = non-polarized 50v (or greater) capacitor



12 dB/Octave Low Pass



12 dB/Octave High Pass

FREQ	2 Ohms		4 Ohms		8 Ohms	
	L1	C1	L1	C1	L1	C1
80Hz	5.5mH	680µF	11mH	330µF	22mH	180µF
100Hz	4.7mH	560µF	9.1mH	270µF	18mH	150µF
130Hz	3.3mH	400µF	6.8mH	200µF	15mH	100µF
200Hz	2.2mH	300µF	4.7mH	150µF	9.1mH	75µF
260Hz	1.8mH	200µF	3.6mH	100µF	6.8mH	50µF
400Hz	1.1mH	150µF	2.2mH	68µF	4.7mH	33µF
600Hz	0.75mH	100µF	1.5mH	47µF	3.0mH	26µF
800Hz	0.5mH	68µF	1.0mH	33µF	2.0mH	15µF
1000Hz	0.47mH	50µF	0.91mH	27µF	1.8mH	13µF
1200Hz	0.33mH	44µF	0.75mH	22µF	1.5mH	11µF
1800Hz	0.27mH	30µF	0.50mH	15µF	1.0mH	6.8µF
4000Hz	0.10mH	15µF	0.22mH	6.8µF	0.47mH	3.3µF

AMPLIFIER **LOCATION** AND MOUNTING

Soundstream Granite amplifiers employ highly efficient circuitry and a unique Chassisink™ design to maintain lower operating temperatures. When mounting the amplifier, it should be securely attached to either a panel or to an amp board or rack that is securely fastened to the vehicle, away from moisture, stray or moving objects, and major electrical components (electrical motors, fuel pumps, etc.). To provide adequate ventilation, mount the amplifier so that there are at least two inches of freely circulating air above and to the sides of it.

- Using the amplifier as a template, mark the mounting surface.
- Remove the amplifier and drill the holes.
- Mount the amplifier to the surface using the provided hardware.

WIRING

You will need the following tools for the wiring of the amplifier: Phillips or slotted screwdriver, wire strippers and wire crimpers.

When baring wires for connection to the amplifier, remove 3/8" to 1/2" of the insulation. For the speaker leads, use the supplied 1/4" insulated female crimp connectors and slide the connector onto the terminal on the amplifier. On the power, ground and remote connections, loosen the screws on the terminal block, slide the bared wire into the connector and tighten the screw. Determine from the chart below the minimum gauge power and ground wire required. Be sure to fuse the amplifier positive power lead within 18" of the battery.

Amplifier	up to 5'	up to 10'	up to 75'	up to 20'
Granite 60.2	12 ga or larger	12 ga or larger	10 ga or larger	10 ga or larger
Granite 120.4	12 ga or larger	12 ga or larger	10 ga or larger	10 ga or larger
Granite 160.6	10 ga or larger	8 ga or larger	8 ga or larger	8 ga or larger

- Carefully **run the audio and remote turn-on cables to the amplifier.**
- Connect the speakers** as shown in "Speaker Wiring Configurations." Use at

least 16 gauge speaker wire, preferably a flexible multi-strand cable, such as Soundstream Speaker 120 or Speaker 160.

- C. **Carefully run the positive power cable from the battery to a fuse or circuit breaker and then to the amplifier.** Connect the lead to the battery via either a fuse or a circuit breaker within 18 inches of the battery. Leave the fuse out or the circuit breaker off until the installation is otherwise finished. If the circuit breaker cannot be shut off manually, do not make the final power connection to it. See chart below for recommended fuse ratings to be used.

<i>Amplifier</i>	<i>Amplifier Fuse</i>	<i>Battery Fuse</i>
Granite 60.2	15 A automotive	20A
Granite 120.4	25 A automotive	30 A
Granite 160.6	30 A automotive	30 A to 50 A

- D. **Run a ground cable** for the amplifier and securely connect it to a solid chassis ground on the vehicle. The ground cable should be *the same gauge* as the power cable.
- E. **Double check each and every connection.**
- F. **Reconnect the fuse or circuit breaker.** Power up the system and the red LED should be lit. There may be a 2-3 second delay from the time that the source unit is turned on to the time that the LED on the amp turns on. This is normal. Once the amplifier power LED is on and the source unit is playing, you should have sound coming from the speakers.

Wiring Tips

- Use grommets when running cables through any metal or sharp plastic to prevent accidental shorting or shearing.
- Be certain that the cables don't interfere with normal operation of the vehicle.
- Choose the location of the audio cables carefully to prevent interference with the vehicle's high current circuits and vehicle management systems (engine computers, relays, etc.).

LEVEL SETTING

The input levels are adjusted by means of a stereo level control located to the left of the input connectors. When the amplifier is operated in the mono/bridged mode, only the right channel input is active.

- A. Turn the input level controls on the amp to minimum position (fully counter-clockwise).
- B. Set source unit volume to approximately 3/4 of full volume.
- C. Adjust outboard crossover and processor level controls so the output level of the processor/crossover equals the input level. To do this, you can plug the head unit outputs directly into the amplifier and listen to one amp at a time (at low levels) to establish a reference, then add the crossover or processor and set its gains to match the reference.
- D. While playing dynamic source material, slowly increase the amplifier's input level(s) until a near maximum undistorted level is heard in the system.

(continues on back cover)

PROTECTION CIRCUITS

Your Granite amplifier is protected against both overheating and short circuits by means of the following circuits:

- A main power supply fuse
- A fail-safe thermal protection circuit activating at 85°C.
- Overcurrent Channel Circuit Breakers
- Short-circuit shutdown

TROUBLESHOOTING

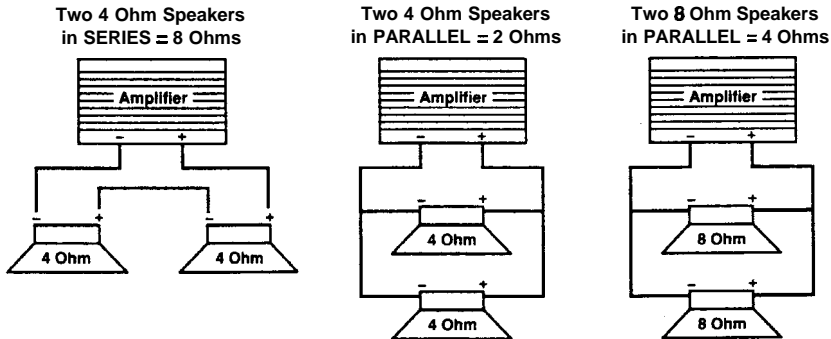
<i>PROBLEM</i>	<i>CAUSE</i>
No Sound and LEDs are not lit	<ul style="list-style-type: none">• no power or ground at amp• no remote turn-on signal• blown fuse near battery• blown power supply fuse (accessible through access cover on-bottom of amp)
Repeatedly blown amp fuse or frequent activation of thermal shut-off	<ul style="list-style-type: none">• speaker or leads may be shorted• verify adequate cooling of the amplifier• speaker load may be less than 2 Ohms

SERVICE

Your Soundstream amplifier is protected by a limited warranty. Please read the warranty card enclosed with this product.

SERIES & PARALLEL WIRING DIAGRAMS

See the diagram below. Note that the manner in which speakers are connected affects the load presented to the amplifier. Keep your speaker load at 2 ohms or greater for any Granite amplifier (4 ohms or greater in Bridged Mode).



SOUNDSTREAM
TECHNOLOGIES

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