

SOUNDSTREAM®
T E C H N O L O G I E S



TR 700/2

TR 880/2

TR 1600/2

TR 500/4

TR 800/5

Power Amplifiers

Owner's Manual
and
Installation Guide

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FEATURES

- **RUBI™ (Rapid-Use Branched Impulse)** This new proprietary power supply topology eliminates power sags during low frequency reproduction by rapidly increasing the duty cycle, stabilizing the power supply and allowing it to deliver the power required when reproducing low frequencies. Also, greater reserve mosfet gate power is stored for low voltage conditions which occur during extreme conditions.
- **STACT™ (STabilized Apex Current Topology)** Reduces power supply stress by 50%. In The STACT design, inversion is done at the power amplifier drive stage. Since the fully symmetrical power amplifier produces no evenharmonic distortion itself and all preamplifier circuitry is run completely inphase, no even harmonic distortion phase reversal occurs and power is better distributed throughout the amplifier.
- **Advanced Trident™ Protection Topology** Protects against potentially harmful damage in the following situations:
 1. Output Protection against short circuits or improper loads.
 2. Voltage Inconsistencies protects against ground fault (speaker shorts to vehicle chassis) and an under/over voltage condition on the battery input.
 3. Thermal Protection puts the amplifier into thermal rollback or shuts the amplifier down in extreme thermal conditions.
- **Tone Sweep Calibration Routine** Automatically configures and optimizes the power supply to the connected speaker load.
- **Continuously Variable Crossover Network** 12 dB/octave low pass cross-overs variable from 30 Hz to 4k Hz with a range selection switch
- **Large Mouth Bass Remote** subwoofer volume control built into the amplifier.
- **Fan Cooling** With thermally sensitive speed control.
- **Differentially Balanced RCA Input** Eliminates ground loop related noise in the audio signal.
- **RCA Line Output** Provides a full range of signal variation, FULL, HP, LP, HP/LP with continuously variable frequency.
- **Wire Connections** Power and ground connections accept 10 gauge cable, while the speaker connections utilize dual 8 gauge connections.

SPECIFICATIONS

Power Bandwidth	10 Hz - 50 kHz
Total Harmonic Distortion	< 0.03 %
S/N Ratio	> 115dB
Input Topology	Instrumentation
Input Sensitivity	150mv - 12 Volts RMS
Input Impedance	10k Ohms
Load Impedance (stereo)	2 - 8 Ohms
Load Impedance (bridged)	4 - 8 Ohms
Supply Voltage	11 - 15 Volts
Damping Factor	>500
Slew Rate	>50 V/ μ S
QBASS™	Up to +12dB Boost @ 40Hz Up to +18dB Boost @ 30, 36, 44, or 60Hz
Crossovers	12dB/Octave
Crossover Frequency	30-4kHz

POWER RATINGS

<u>MODEL</u>	<u>4ohm STEREO</u>	<u>2ohm STEREO</u>	<u>4ohm MONO</u>
TR700/2	175w X 2ch	350w X 2ch	700w X 1ch
TR880/2	220w X 2ch	440w X 2ch	880w X 1ch
TR1600/2	400w X 2ch	800w X 2ch	1600w X 1ch
TR500/4	125w X 4ch	250w X 4ch	500w X 2ch
TR800/5	50w X 4ch +(sub)200w X 1ch	100w X 4ch +(sub)400w X 1ch	200w X 2ch +(sub)400w X 1ch

<u>DIMENSIONS</u>	<u>Length</u>	<u>Width</u>	<u>Height</u>
TR700/2	19.5 inch	12.25 inch	4 inch
TR880/2	19.5 inch	12.25 inch	4 inch
TR1600/2	30 inch	12.25 inch	4 inch
TR500/4	24 inch	12.25 inch	4 inch
TR800/5	24 inch	12.25 inch	4 inch

TOOLS / PARTS FOR INSTALLATION

NOTE: TOOLS ARE NOT SUPPLIED

Small flat blade screwdriver Phillips screwdriver (#2 or medium sized)
Wire cutters Wire strippers 7 - #6 round head screws, and 1 - #8 sheet metal screw (or nut, bolt, flat washer, star washer) [see detail] 2 - Ring connectors (large enough to accommodate your method of grounding) In-line fuse or circuit breaker - see fuse chart below Power and ground wire - see Power Wire Calculator on page 7
Speaker wire - 12-16 gauge Grommets (sized to work with the power wire you plan to use in your installation)
Tube of silicone sealant



FUSE REQUIREMENTS

You will need to install an in-line fuse or circuit breaker in the power wire within 18" of the battery. This fuse or circuit breaker is to protect your vehicle from fire in case the power wire shorts to the vehicle body. If you are only using one amplifier, use the fuse rating indicated in this chart. If you are using more than one amplifier, add up the fuse ratings for all the amplifiers. This sum is the rating for your fuse or circuit breaker. You may also want to add a power distribution block near your amplifiers to distribute large gauge power cable to multiple amplifiers.

Amplifier	Maximum Fuse Rating
<i>TR700/2</i>	60 Amp
<i>TR880/2</i>	80 Amp
<i>TR1600/2</i>	140 Amp
<i>TR500/4</i>	90 Amp
<i>TR800/5</i>	100 Amp

WIRING

The following is a basic formula to be used as a guide to determine current draw. A 50% amplifier efficiency rating is used as an average. Your new **TR** amplifier is more efficient than most other amplifiers. This formula is to be used as a guideline. Using wire of a larger gauge can only improve the current transfer of your system. Do not use smaller gauge wire.

Total Amplifier RMS output x 2 = Total Input Wattage from car

$$\frac{\text{Total Input Wattage}}{\text{Supply Voltage}} = \text{Current Draw (in Amps)}$$

Example: A **TARANTULA TR700/2** amplifier has two channels at 175w per channel RMS rating into 4 Ohms (175 x 2 = 350).

You would use the formula in the following way:

$350W \times 2 = 700W$

$$\frac{700W}{12V} = 58.3 \text{ Amps Total current draw.}$$

If the same amplifier is driven into a 2 Ohm stereo or 4 Ohm mono load, double it's 4 Ohm RMS rating. All **TR** amplifiers will effectively double their power at this load.

$(160W \times 2) \times 2 = 640W$

$$\frac{640W}{12V} = 116.7 \text{ Amps Total current draw.}$$

If you are using more than one amplifier, add up the total current draw for all of them and choose the appropriate gauge based on the grand total.

POWER WIRE CALCULATOR

Total Current Draw

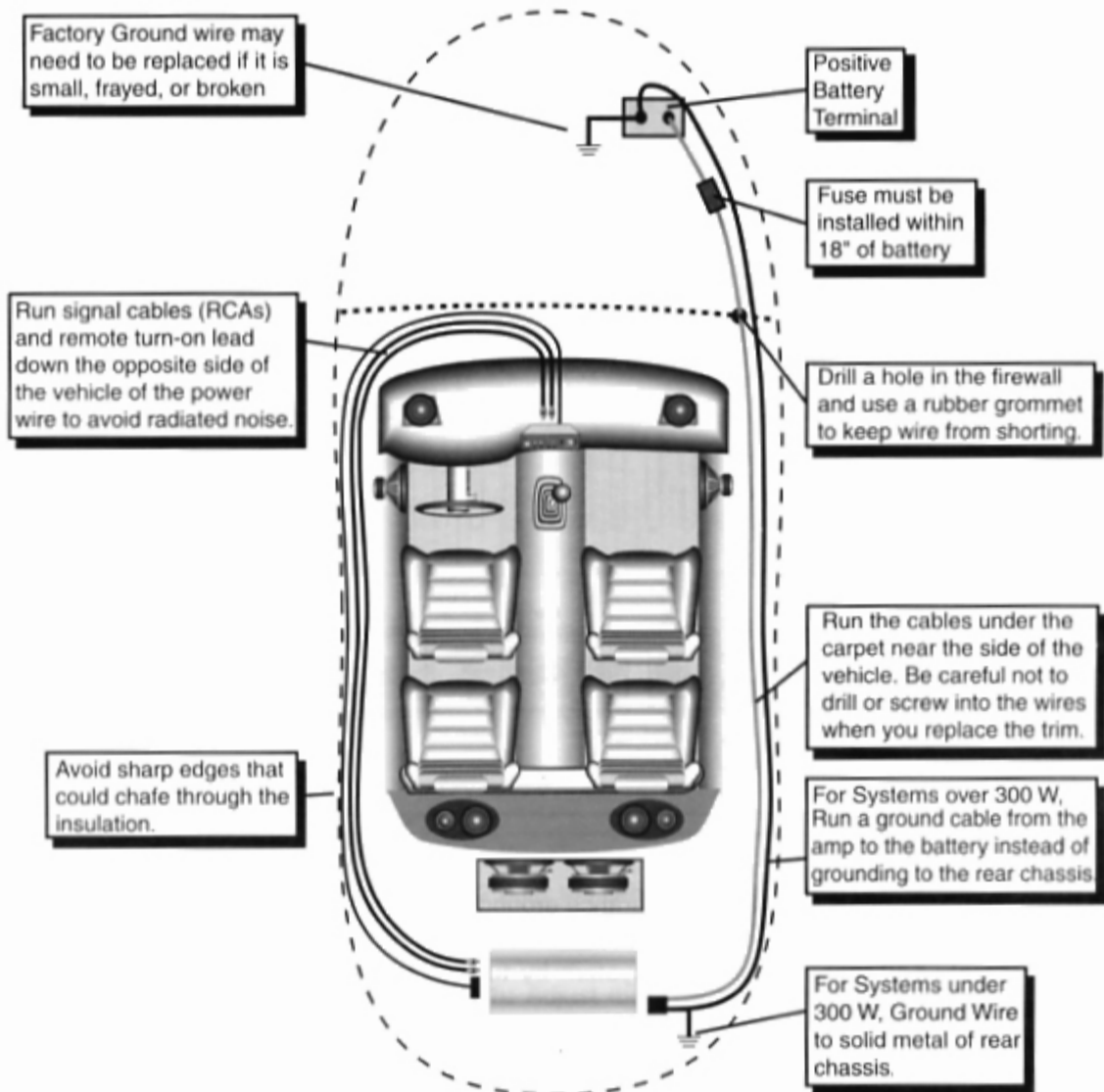
Length Of Wire To Be Run

(in amps)	Up to 4ft.	4 to 7ft.	7 to 10ft.	10 to 13ft.	13 to 16ft.	16 to 19ft.	19 to 22ft.	22 to 28ft.
25-50	10	10	8	8	6	6	4	4
50-65	8	8	6	4	4	4	4	2
65-85	6	6	4	4	2	2	2	0
85-105	6	6	4	2	2	2	2	0
105-125	4	4	4	2	2	0	0	0
125-150	2	2	2	2	0	0	0	00
150-200	0	0	0	0	00	00	00	000
200-250	00	00	00	000	000	000	000	0000

NOTE: The ground wire must be the same gauge or larger as the power wire.

WIRING

Before beginning, disconnect the negative (-) terminal of the battery prior to working on the positive (+) terminal to prevent a short to ground. This is important, unless you want to spend the rest of your life with a nickname like "Sparky," or "Smokey." Reconnect the negative terminal only after all connections have been made.



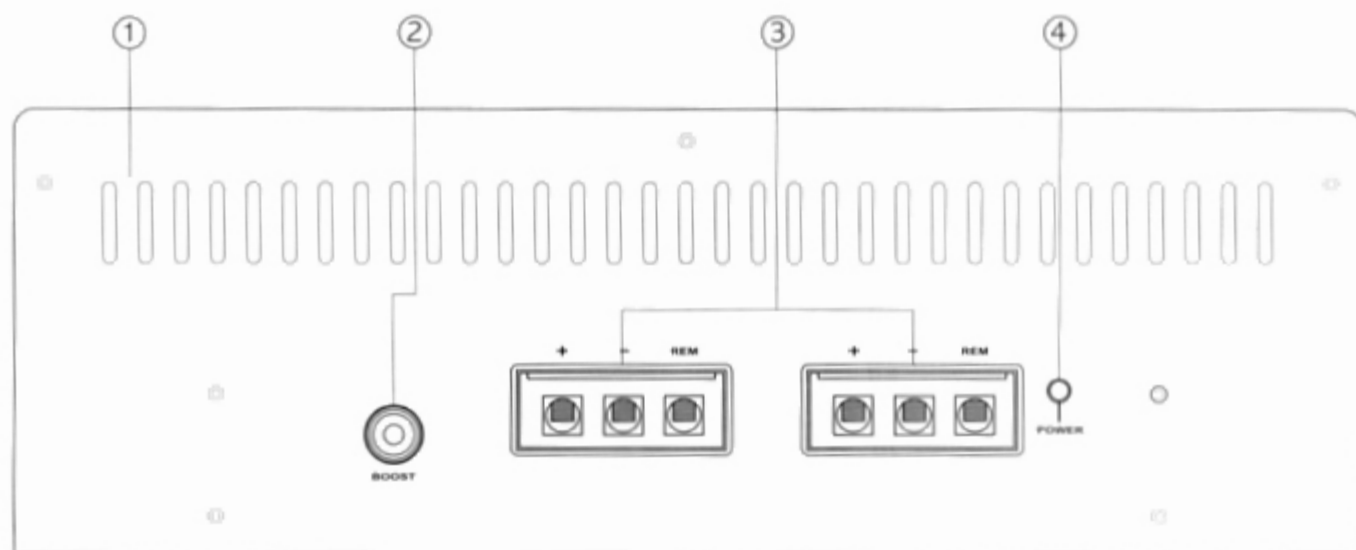
Warning! A Main Fuse must be installed within 18" of battery!

GROUND WIRING

Locate an area near the amplifier(s) that is metal and clean an area about the size of a quarter to bare metal. Inspect the area around and underneath to be sure you won't drill into wires, brake or fuel lines, etc. Drill a pilot hole in the middle of this area. Terminate the ground wire with a ring connector and attach it to the bare metal using a #8 sheet metal screw and washer or preferably, a bolt, nut and a star washer (*not supplied*). We suggest crimping and soldering this connection. After the connection is complete, coat the area (*on both sides*) with silicone or some similar material to prevent rust from developing on the bare metal. If your grand total current draw is over 50 amps (*or total output power is over 300 watts*), you should run a separate ground wire beside your power wire from the battery to the amplifier(s). Keep the ground and power wires as close together as possible, and use the same gauge wire for both. This will ensure that you have a good ground path, and may eliminate such potential problems as engine noise and overheated amplifiers.

REAR ENDPLATE

TR 700/2, TR 880/2, TR 1600/2, TR 500/4, TR 800/5

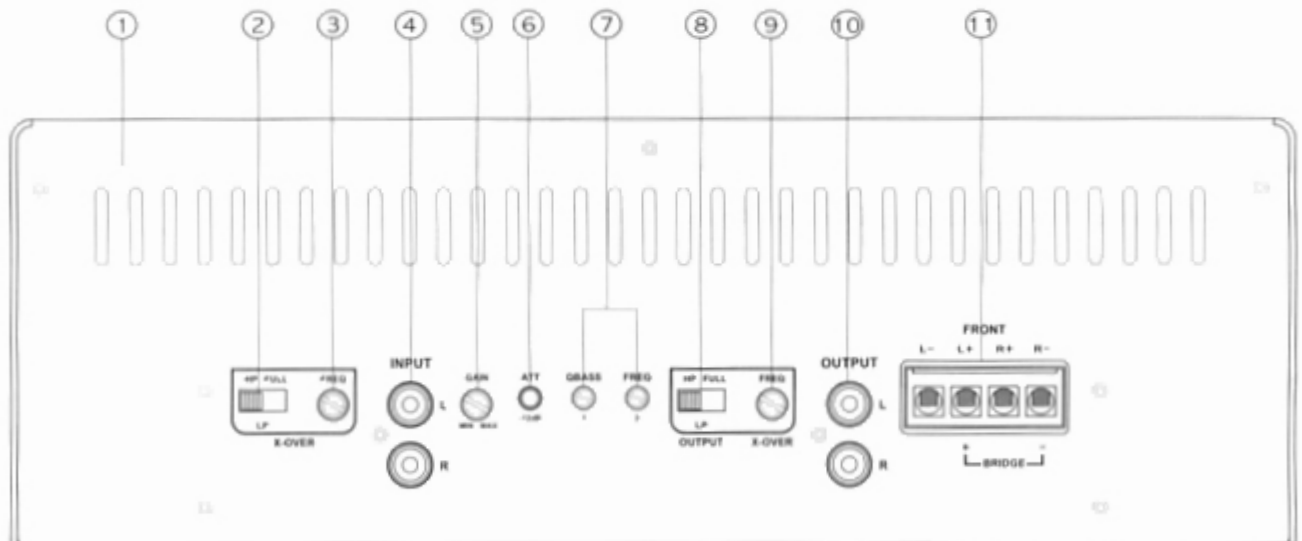


- 1. Cooling Plenums:** Maintain a minimum 2" clearance around cooling plenums for proper amplifier cooling.
- 2. QBASS™ Control:** Add more bass to the system by turning this control clockwise to boost the selected QBASS™ frequency up to 18dB.
- 3. Power & Ground Connections:** After connecting the power and ground r. Remote cables.
- 4. Power Indicator:** A green light indicates that the amplifier power is ON.

ENDPLATE DIAGRAM

- 1. Cooling Plenums:** Maintain a minimum 2" clearance around cooling plenums for proper amplifier cooling.
- 2. Crossover HP/LP/FULL Select Switch:** Adjust this switch to select the HPF/LPF/FULL function for the speaker outputs.
- 3. Crossover Frequency Select Control:** Use this control to adjust the crossover frequency for the speaker output. (See Crossover frequency chart pg.19)
- 4. RCA Inputs:** Connect the RCA cables from source unit, or line driver to these RCA connectors.
- 5. Gain Control:** Use this control to match the output level of the source-unit to the input of the amplifier.
- 6. -12dB Input Attenuation:** Push this switch 'IN' for high voltage input (4V-12V) capability. This button pushed 'IN' must be used for speaker level input on common ground head-units or for high voltage line drivers.

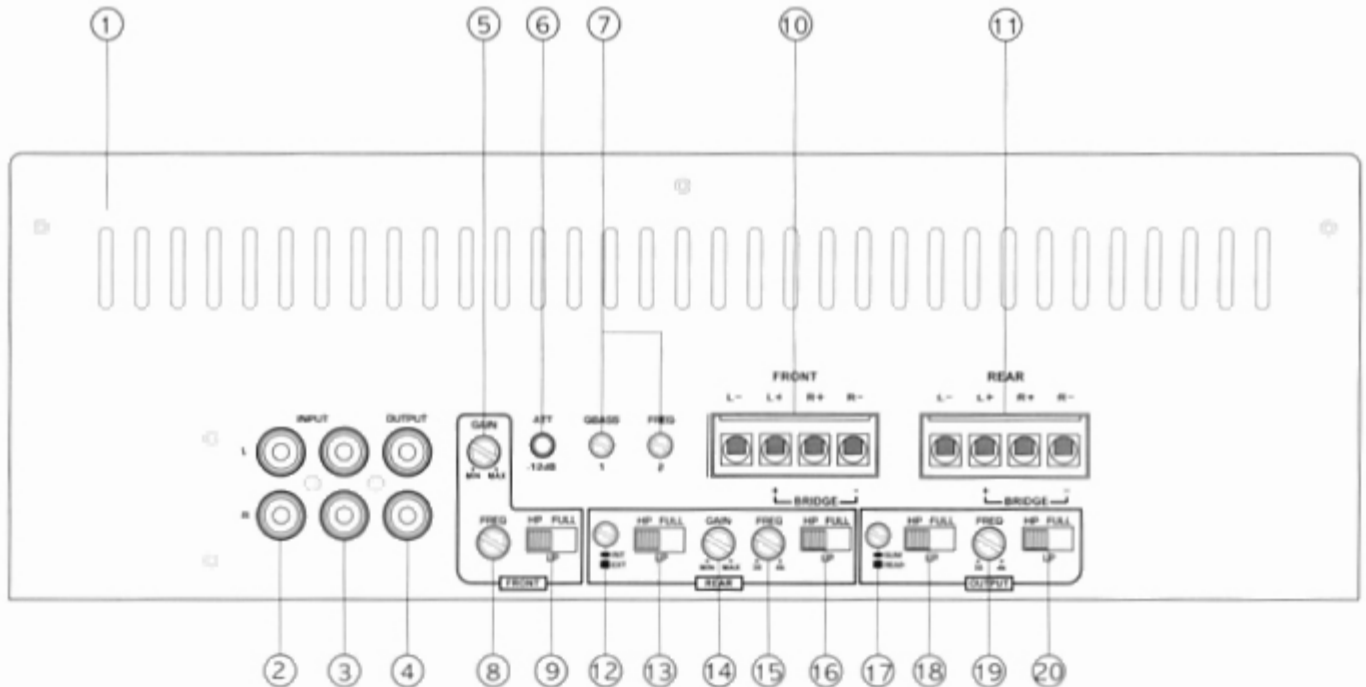
TR 700/2, TR 880/2, TR 1600/2



- 7. QBASS™ Frequency Control:** Buttons 1 and 2 offer the capability of selecting 30, 36, 44, or 60Hz to boost by the QBASS™ Control.
- 8. Output Crossover HP/LP/FULL Select Switch:** Adjust this switch to select the HP/LP/FULL function for the RCA outputs.
- 9. Output Crossover Frequency Knob:** Use this control to adjust the crossover frequency for the RCA output.
- 10. RCA Outputs:** Left and right RCA outputs provide HP/LP/Full; 30-4KHz to another amplifier.
- 11. Speaker Output Connections:** The speaker connector in here.

ENDPLATE DIAGRAM

TR 500/4



- 1. Cooling Plenums:** Maintain a minimum 2" clearance around cooling plenums for proper amplifier cooling.
- 2. Front Inputs:** Plug in the front RCA leads from your source unit here.
- 3. Rear Inputs:** Plug in the rear RCA leads from your source unit here.
- 4. RCA output:** RCA outputs provide HP/LP/FULL 30-4kHz signal to another amplifier.
- 5. Front Gain:** Use this control to match the output level of the source unit to the front channel of the amplifier.
- 6. -12dB:** Push this switch 'IN' for high voltage input (4V-12V) capability. This button pushed 'IN' must be used for speaker level input on common ground head-units or for high voltage line drivers.
- 7. QBASS 1 & QBASS 2 Freq.:** Use these switches, QBASS 1 & QBASS 2 to program the QBASS PLUS circuit frequency.
- 8. Front Freq. Control:** Move this detented control in a clockwise rotation to adjust the front crossover frequency from 30Hz to 4kHz. (See Crossover frequency chart pg.17)
- 9. Front HP/LP/FULL Switch:** Select the desired crossover setting, HP/LP/FULL for the speaker output signal of the front channel.
- 10. Front Speaker Connector:** The speaker connector here.
- 11. Rear Speaker Connector:** The speaker connector here.
- 12. Rear Input INT/EXT Button:** Select the in, 'INT' position if you want to use the internal signal path from the front crossover for the rear input, or the out, 'EXT' position to use the external rear RCA input.
- 13. Source HP/LP/FULL Switch:** Select the desired crossover setting, HP/LP/FULL for the internal signal from the front channel to the rear channel when not using an external Rear RCA input.
- 14. Rear Gain:** Use this control to match the output level of the head unit to the rear channel of the amplifier.
- 15. Rear Freq. Control:** Move this detented control in a clockwise rotation to adjust the rear crossover frequency from 30Hz to 4kHz. (See Crossover frequency chart pg.17)
- 16. Rear HP/LP/FULL Switch:** Select the desired crossover setting, HP/LP/FULL for the speaker output signal of the rear channel.

17. Source Sum/Rear Button: Select the in, 'SUM' position if you want to use the RCA output information summed from the front and rear audio channels, or the out, 'REAR' position to select the input off of the rear channel only for bandpass capability.

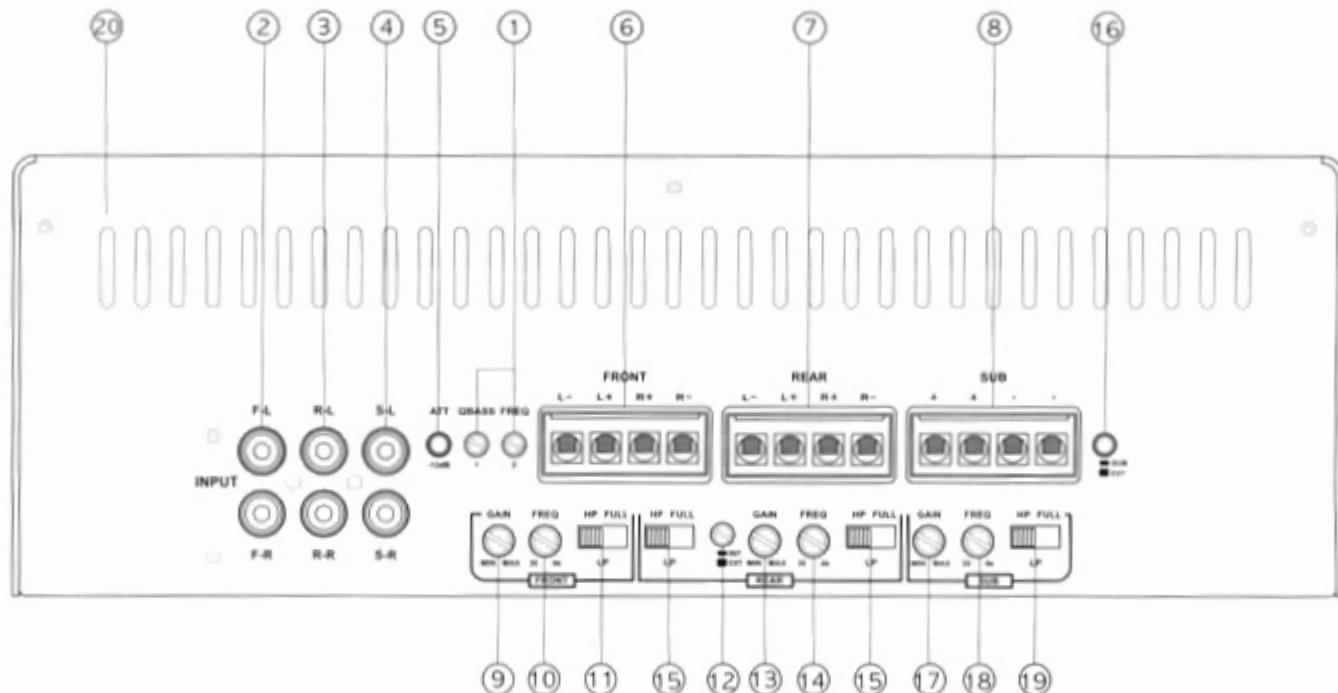
18. Source HP/LP/FULL Switch: Select the desired crossover setting, HP/LP/FULL for the output signal of the rear channel when not using the 'SUM' source input.

19. Output Freq. Control: Use this to adjust the rear high pass crossover frequency from 30Hz to 4kHz. (See Crossover frequency chart pg.17)

20. Output HP/LP/FULL Switch: Select the desired crossover setting, HP/LP/FULL for the signal of the output RCA.

ENDPLATE DIAGRAM

TR 800/5



1. QBASS 1 & QBASS 2 Freq.: Use these switches, QBASS 1 & QBASS 2 to program the QBASS PLUS circuit frequency. - Only sub channel

2. Front Inputs: Plug in the front RCA leads from your source unit here.

3. Rear Inputs: Plug in the rear RCA leads from your source unit here.

4. Sub Input: Plug in the front RCA leads from your source unit here.

5. -12dB: Push this switch 'N' for high voltage input (4V-12V) capability. This button pushed 'N' must be used for speaker level input on common ground head-units or for high voltage line drivers.

6. Front Speaker Connector: The speaker connector here.

7. Rear Speaker Connector: The speaker connector here.

8. Sub Speaker Connector: The speaker connector here.

9. Front Gain: Use this control to match the output level of the source unit to the front channel of the amplifier.

10. Front Freq. Control: Move this detented control in a clockwise rotation to adjust the front crossover frequency from 30Hz to 4kHz.

11. Front HP/LP/FULL Switch: Select the desired crossover setting, HP/LP/FULL for the speaker output signal of the front channel.

12. Rear Source INT/EXT Button: Select the in, 'INT' position if you want to use the internal signal path from the front crossover for the rear input, or the out, 'EXT' position to use the external rear RCA input.

13. Rear Gain: Use this control to match the output level of the head unit to the rear channel of the amplifier.

14. Rear Freq. Control: Move this detented control in a clockwise rotation to adjust the rear crossover frequency from 30Hz to 4kHz.

15. **Rear HP/LP/FULL Switch:** Select the desired crossover setting, HP/LP/FULL for the internal output signal of the rear channel.
16. **Sub Source Int/Ext Switch:** Select 'INT' position if you want to use the internal signal path from the rear crossover for the sub input, or the 'EXT' position to use the external sub RCA input.
17. **Sub Gain:** Use this control to match the output level of the head unit to the sub channel of the amplifier.
18. **Sub Freq. Control:** Use this to adjust the rear high pass crossover frequency from 30Hz to 4kHz.
19. **Sub HP/LP/FULL Switch:** Select the desired crossover setting, HP/LP/FULL for the internal output signal of the sub channel to the speaker output.
20. **Cooling Plenums:** Maintain a minimum 2" clearance around cooling plenums for proper amplifier cooling.

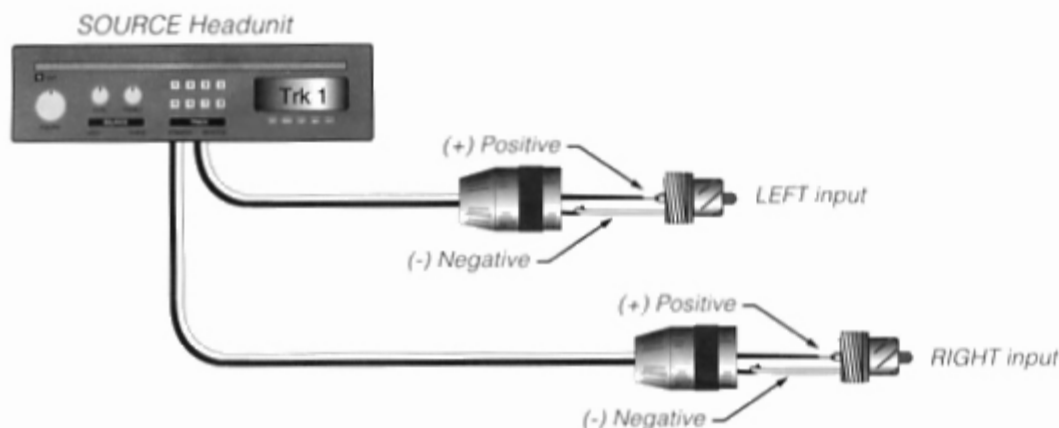
AMPLIFIER BRIDGING

All two-channel **TR** amplifiers are capable of being bridged into a 4 ohm mono output without switches or bridging modules. This feature permits the creation of a mono channel for a subwoofer or center channel. Deriving the mono channel is accomplished by using the Left Channel Positive wire (**L+**) as the positive speaker wire and the Right Channel Negative wire (**R-**) as the negative speaker wire.

NOTE: It is important that a minimum 4 ohm impedance is observed. If the impedance drops below 4 ohms while the amplifier is wired in the bridged configuration, the amplifier's protection circuitry (**AM-V**) may engage.

INPUTS

There are two sets of RCA jacks on the front end of your amplifier. The RCA cables from your source unit go in the set labeled **INPUTS**. If your source unit doesn't have RCA outputs don't worry. Simply add a set of RCA plugs (available at your dealer) to your front or rear set of speaker leads (see drawing below), plug them into the input jacks, and push in the -12dB input attenuation switch.



ADJUSTING INPUT GAIN

1. Adjust all amplifier input gain controls to just above minimum sensitivity (fully counterclockwise).
2. Using the cleanest music source (CD) playing, turn up the head unit source volume until you can hear distortion. Now turn it down a bit until you cannot hear the distortion (*usually* just below full volume).
3. Increase the Amplifier gain (clockwise) until the onset of audible distortion. Then decrease the gain to the point just before the distortion starts. This setting minimizes background noise and prevents overload.
4. Repeat step 3 for any remaining amplifiers in the system.

TROUBLE SHOOTING

NO SOUND

Is the LED lit?

YES

NO

Check Power and Remote turn-on wire for voltage. Make sure Ground wire is secure.

STILL NO SOUND

See your Authorized *Sound Stream* Dealer.

SOUND IN ONE CHANNEL ONLY

Reverse left and right speakers by unplugging the speaker connector, turning it over and plugging it back in.

SOUND IS NOW IN

OPPOSITE CHANNEL

Reverse RCA inputs

SAME CHANNEL

Problem is in the speaker or speaker wire of the silent channel

SOUND IS NOW IN

OPPOSITE CHANNEL

Reverse RCAs at head unit

SAME CHANNEL

Problem is in the Amplifier. See your local Authorized

Dealer

SOUND IS NOW IN

OPPOSITE CHANNEL

Problem is in the head unit or before the amplifier

SAME CHANNEL

Problem is in the RCA cables

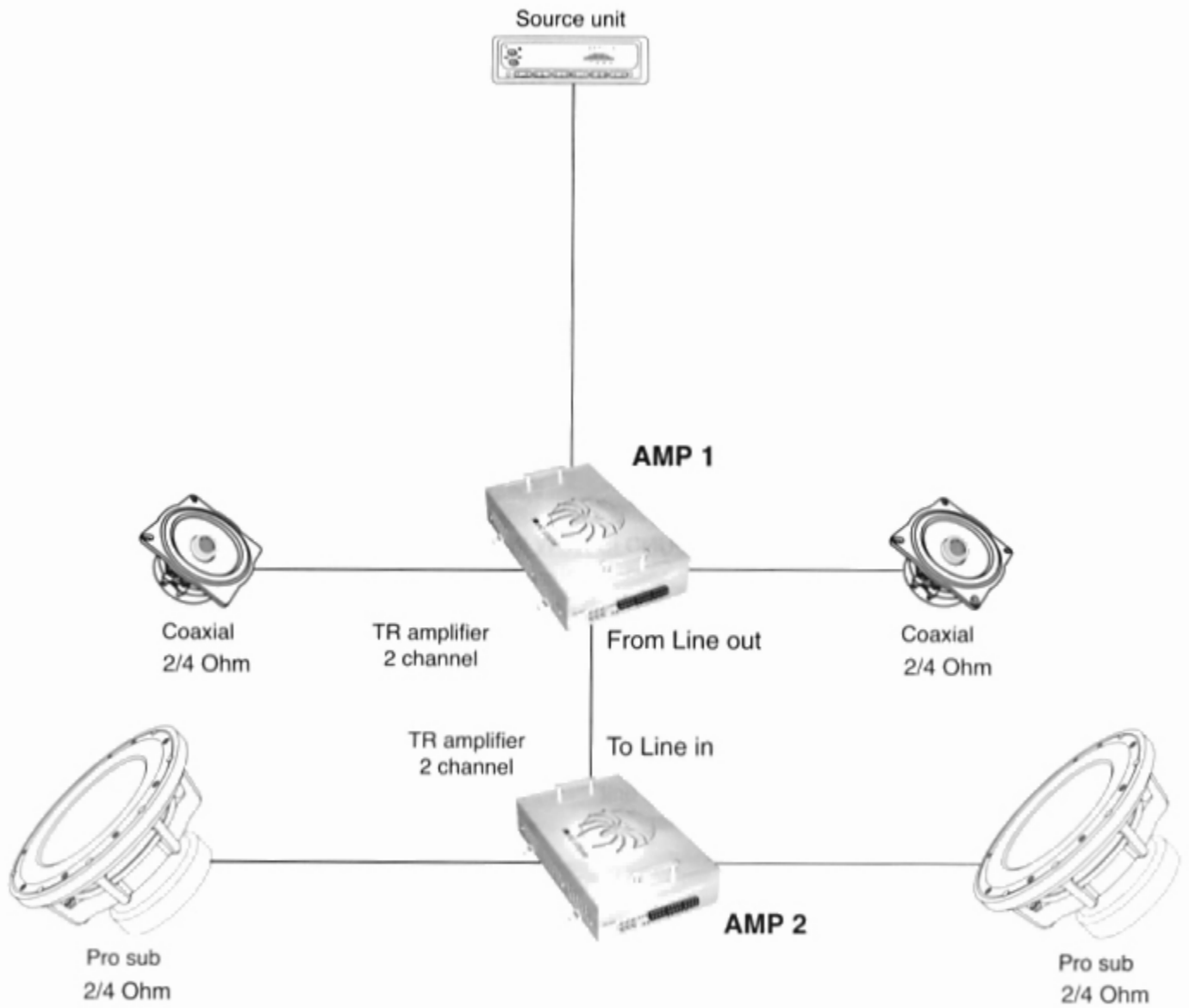
PROTECTION CIRCUIT

Short Circuit Protection engaged: The amplifier will turn off and try to come back on immediately. The amplifier will cycle like this indefinitely, with "blips" of sound each time. If this is the case, check your speakers and wiring for low impedance and short circuits.

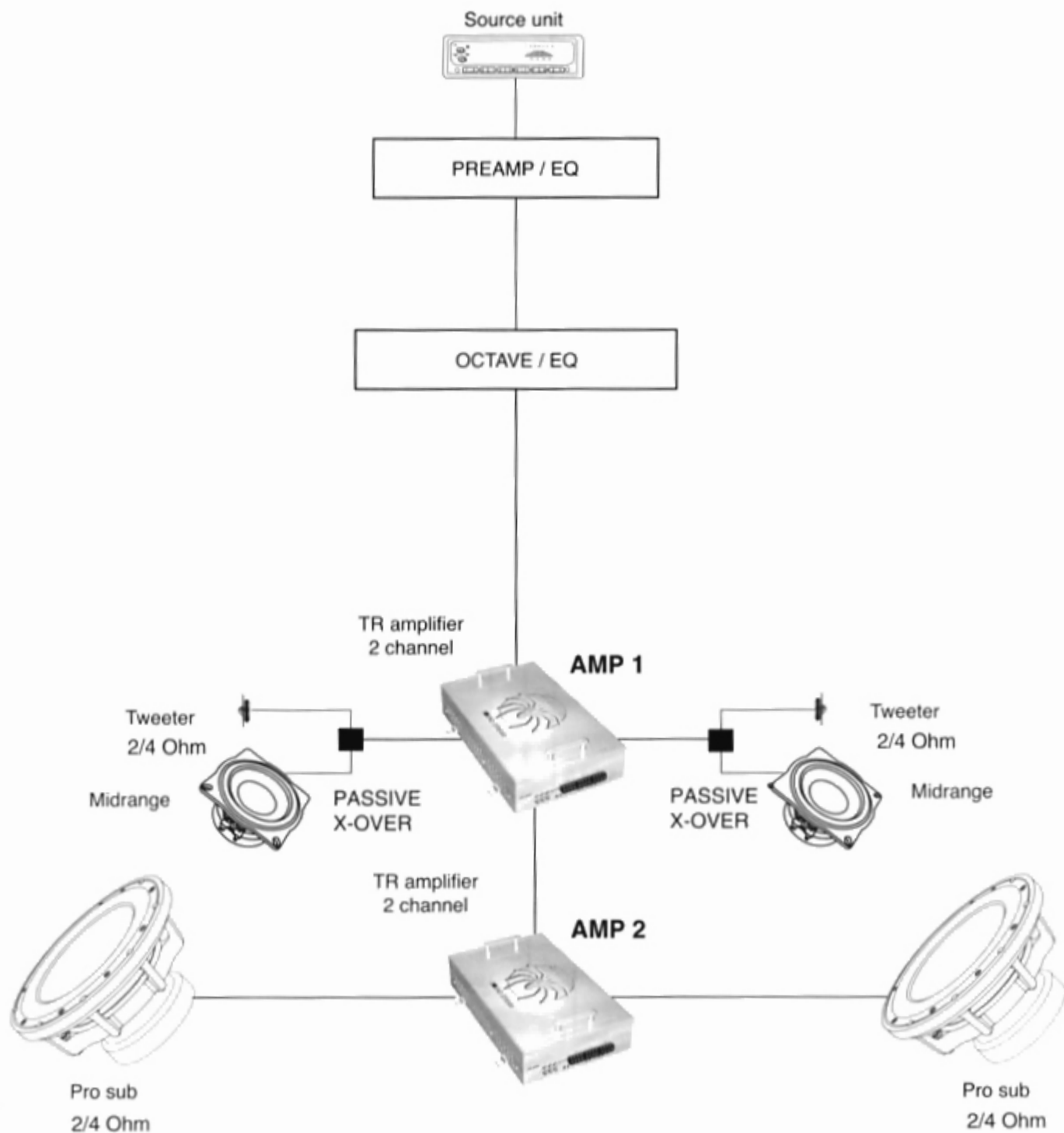
Thermal Protection engaged: The amplifier will turn off and several minutes later will come back on. In this case, ensure that there is nothing blocking the normal convective airflow of the amplifier. No obstruction should be within 2" of the amplifier on all sides.

NOTE: Low battery voltage will cause the amplifier to run warmer and possibly damage the amplifier.

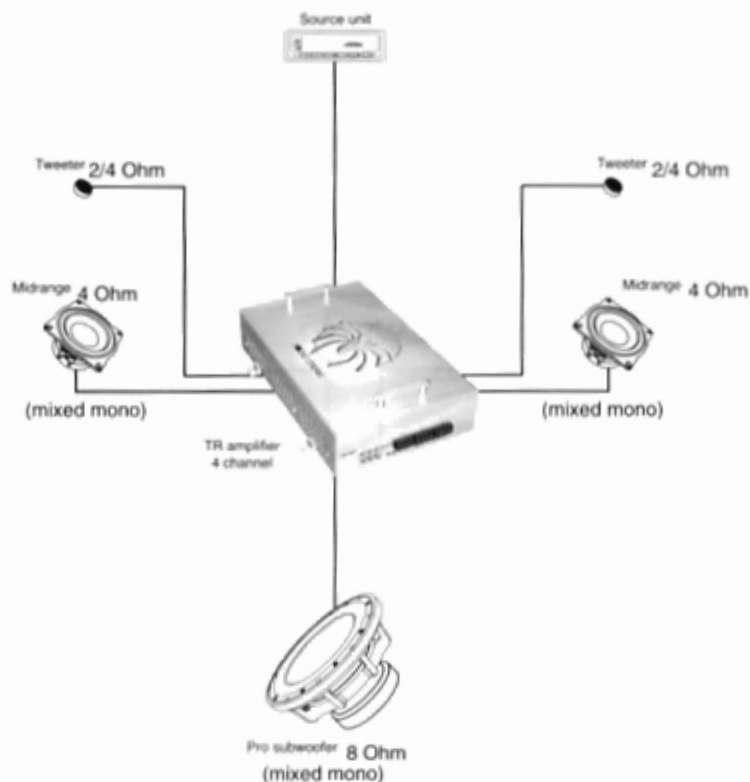
SYSTEM DESIGN #1



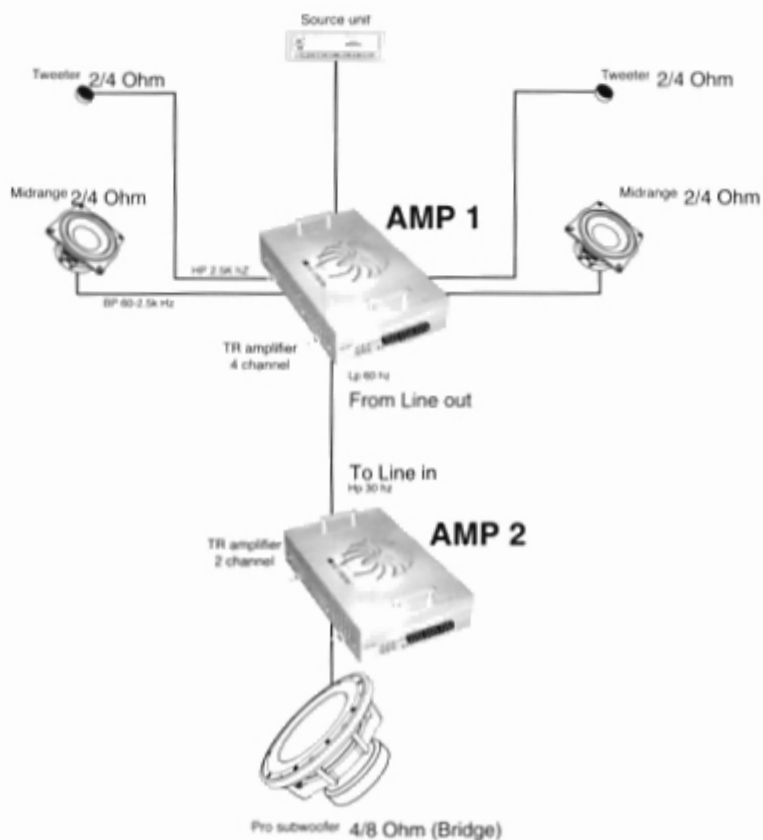
2CH SYSTEM DESIGN #2



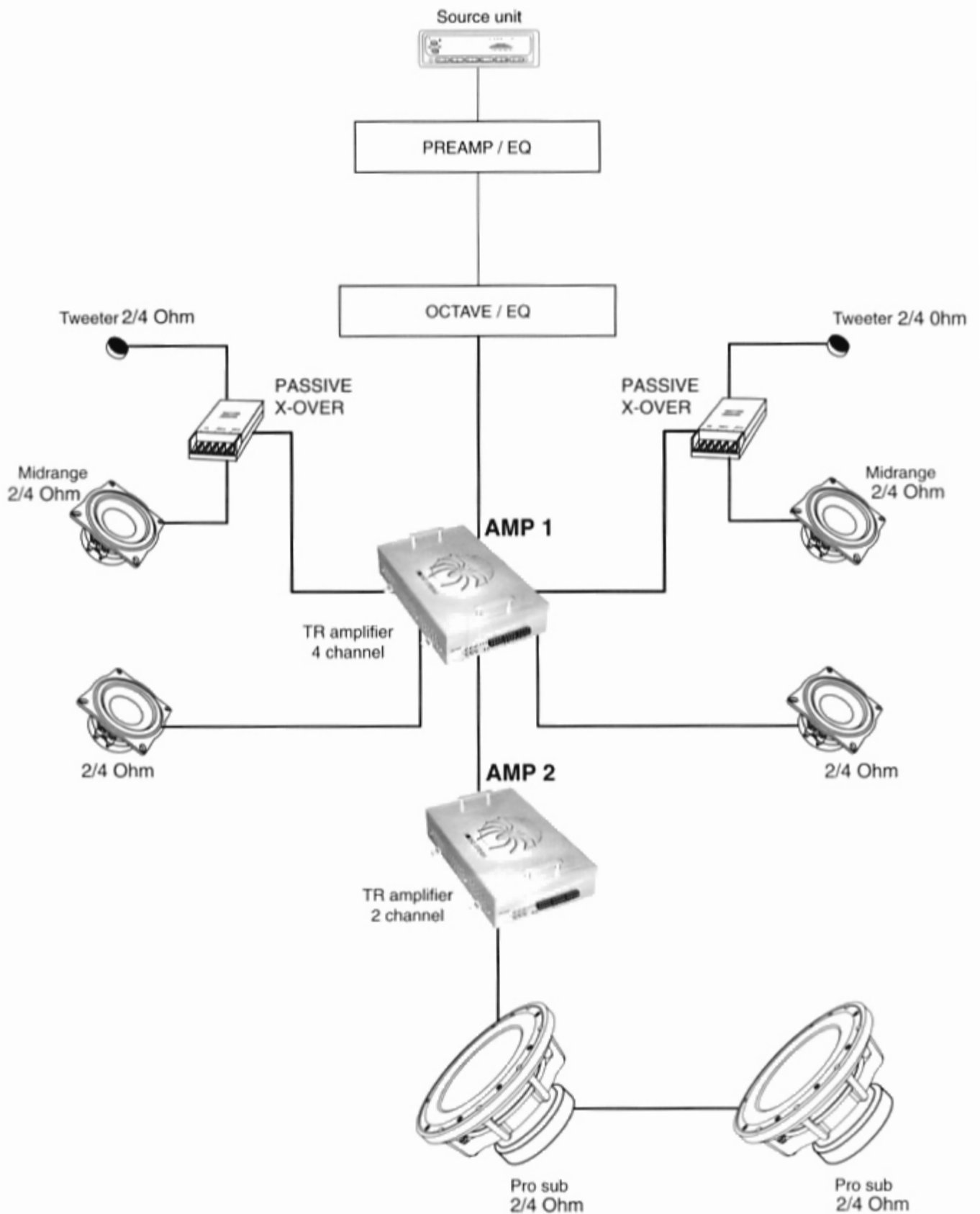
4CH SYSTEM DESIGN #1



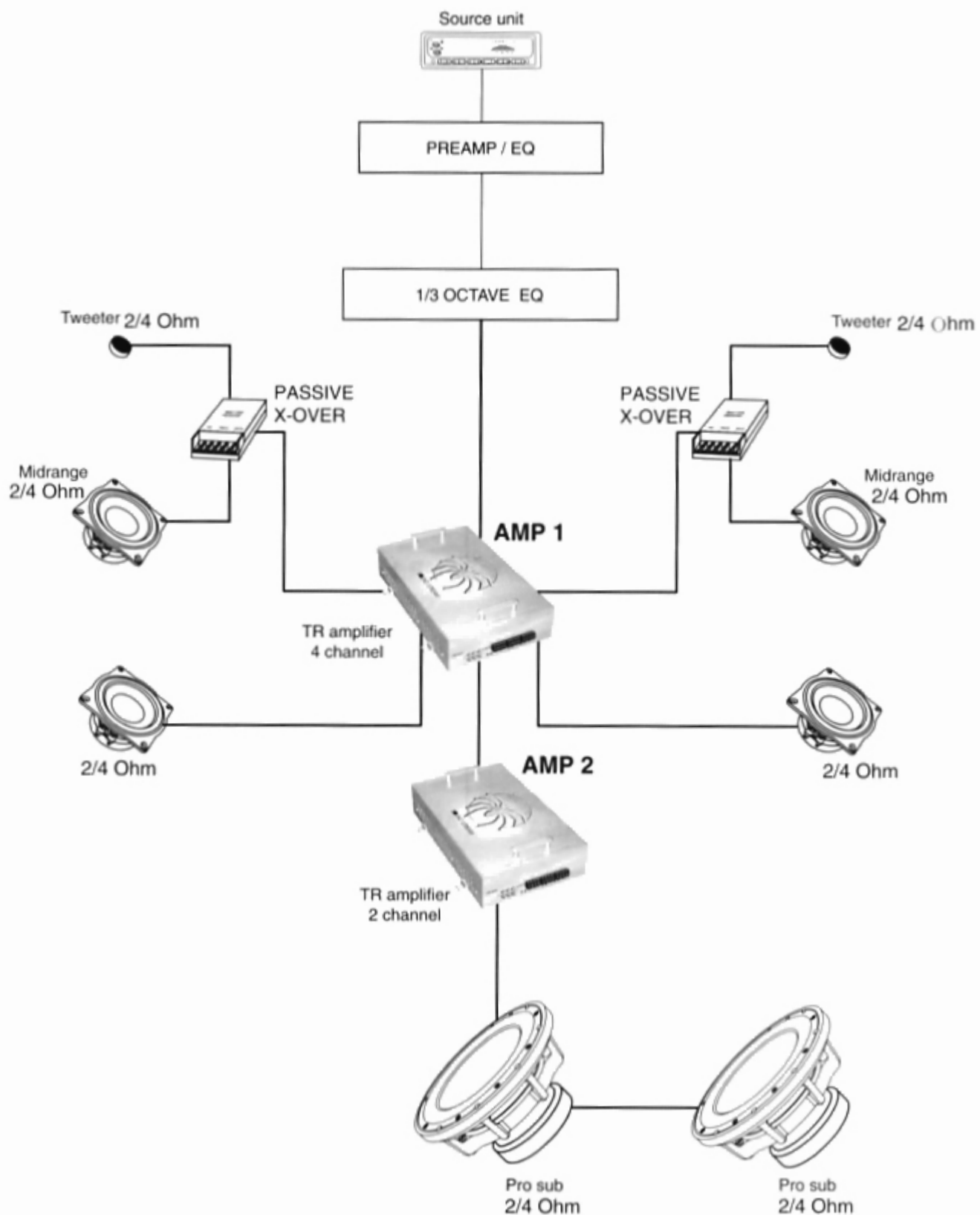
4CH SYSTEM DESIGN #2



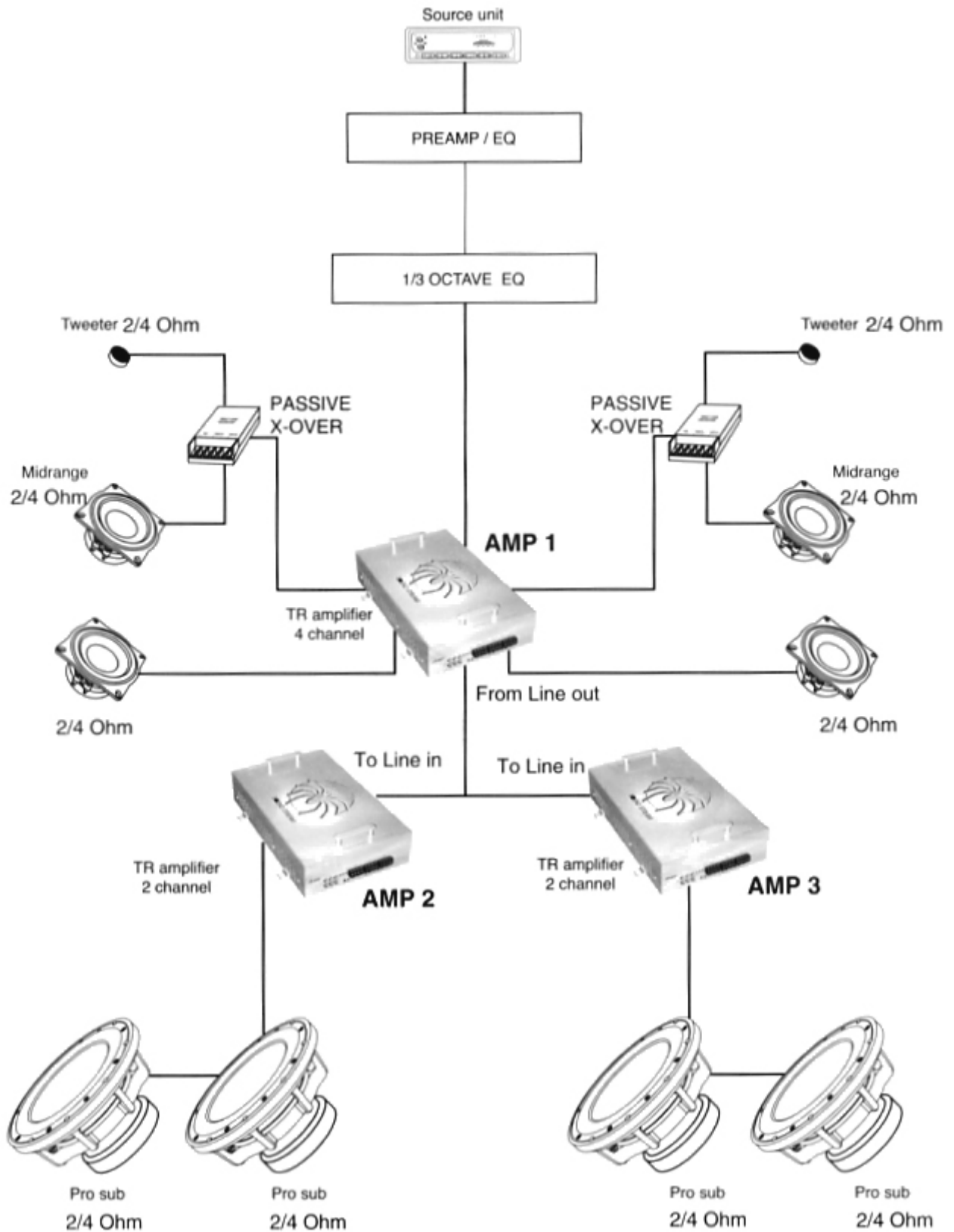
4CH SYSTEM DESIGN #3



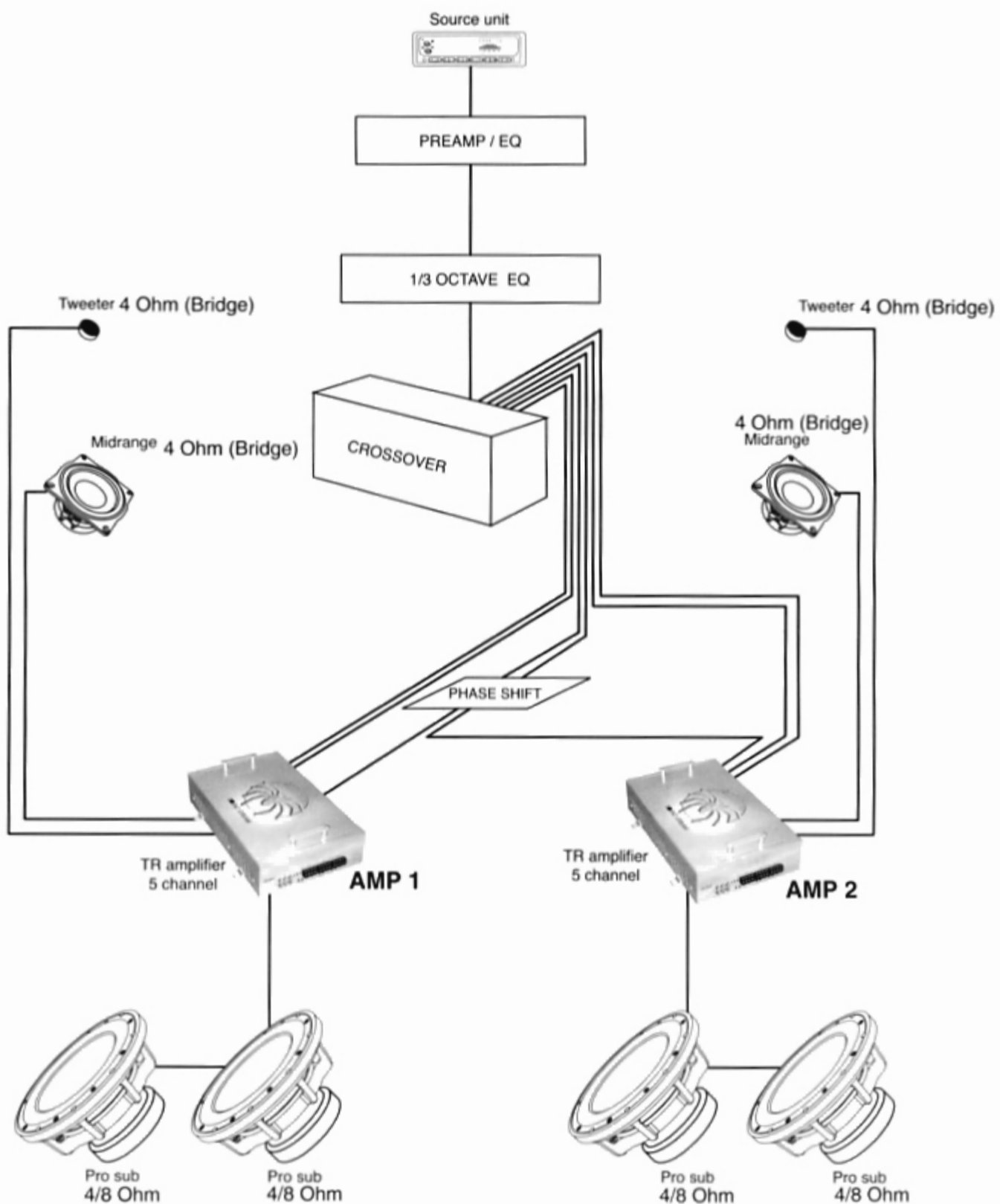
4CH SYSTEM DESIGN #4



4CH SYSTEM DESIGN #5



5CH SYSTEM DESIGN #6



SOUNDSTREAM[®]

T E C H N O L O G I E S

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