U·S·Amps
Merlin Series II

OWNER'S MANUAL

CONTENTS

Congratulations

on your selection of a **U.S.Amps** Merlin Series II Amplifier. We take pride in manufacturing our products and you can expect your new amplifier to give you years of trouble-free service.

To make your installation as easy and reliable as possible, **please read this manual carefully before beginning.** If you need more information, your **U.S.Amps** Dealer will be glad to help.

OWNER'S MANUAL

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FEATURES

POWER SUPPLIES

all models

- High-current MOSFET devices
- MMT Regulated Power Supplies
- 35 nanosecond switching diode
- High capacity power transformer
- Multiple bypass capacitors on incoming 12v supply
- Time delay turn-on with opto-coupled mutinng circuits
- Power supplies use pulse-width modulation
- Thermal and reverse polarity protection

AMPLIFIERS MD 41 MD 1D MD 42 MD 2D MD 23 MD 3D

- High efficiency class D design(MD 1D/MD 2D/MD 3D)
- Output stages utiliz high-current MOSFET devices
- High speed, audiophile-grade components in all low-level stages
- Platinium-plated RCA inputs and connectors
- Wide range sensitivity, accept signal from any head unit
- 24dB/octave subsonic crossover
- 24dB/octave lowpass crossover
- True Line Output
- Auto Bridge feature(except MD 1D/MD 2D/MD 3D)
- Short circuit Protection

U·S·Amps Merlin Series II

SPECIFICATIONS

			Model nbr	MD 3D	MD 2D	MD 1D	MD 23	MD 42	MD 41
			UNIT						
Power Output(RMS)	4 ohm @ 12V		W	1X500	1X300	1X200	2x300	4x90	4x60
	4 ohm @ 14.4V		W	1X650	1X550	1x400			
at full frequency	2 ohm		W				2x500	4x125	4x80
			W	1X1200	1X1000	1x750			
(10Hz - 20KHz)	1 ohm		W						
		100HZ	W	1X2000	1X1500	1x1200			
(before clipping)	4 ohm mono	1KHZ	W				1x1000	2x250	2x160
			W						
Total Harmonic Distortion	4 ohm	1KHZ	0.01%	0.09	0.09	0.09	0.03	0.03	0.03
S/N Ratio	INPUT SHORT	4 ohm	dB	80	80	80	105	100	100
Channel Seperation at 4ohm RMS		1KHZ	dB	N/A	N/A	N/A	95	83	85
Frequency Response			Hz	20-250	20-250	20-250	10-30000	10-30000	10-30000
Power Band Width		+/-1 dB	Hz	20-500	20-500	20 -500	10	10	10
(Frequence Response)			KHZ	●	●	●	50	50	50
Crossover Frequency	LOW PASS	24dB	Hz	40-250	40-250	40-250	40-250	40-250	40-250
	SUBSONIC	24dB	Hz	15-40	15-40	15-40	15-40	15-40	15-40
	HIGH PASS	12dB	Hz	●	●	●	40-1000	40-1000	40-1000
Bass EQ Control @45Hz		12dB	dB	0-12	0-12	0-12	0-12	0-12	0-12
Wired Remote Control		1KHZ		Yes	Yes	Yes	Yes	optional	optional
Bridged Mono Capable			ohm	●	●	●	4	4	4
Gain Control				Yes	Yes	Yes	Yes	Yes	Yes
Input	LOW LEVEL	1KHZ	mV/V	200/6.0	200/6.0	200/6.0	200/6.0	200/6.0	200/6.0
Sensitivtiy	HIGH LEVEL	1KHZ	V						
Input	LOW		Kohm	22	22	22	10	10	10
Impendance	HIGH		ohm						
Damping Factor				100	100	100	600	400	400
Dimensions (W x 62/H x 230/D)			m/m	550	530	500	510	450	420
Fuse Rating			A	40Ax6	40Ax3	30Ax3	30Ax3	30Ax2	25Ax2
Protection(thermal, overload.short circuit. dc off-set)				Yes	Yes	Yes	Yes	Yes	Yes
Power Voltage Range			V	12V-16V	12V-16V	12V-16V	12V-16V	12V-16V	12V-16V

INSTALLATION

1. Use at least #8 wire for power and ground connections.
2. Use at least #12 wire for speaker connections.
3. Use at least #16 wire for remote connection.
4. Mount the amplifier in a location which will allow for free circulation of air.
5. Use the shortest ground connection to the chassis of the vehicle and make sure that the paint is removed at the connection point.
6. Connect the remote input to the remote/antenna output of the head unit.
7. Mount a fuse holder within 200mm (8") of the vehicle's battery. Use a fuse equal to the total specified for your amplifier. If a large gauge, single +12v line is run which feeds more than one amplifier, add up all required fuse ratings and use the total rating for this fuse.
8. Connect the speakers to the amplifier, observing the correct phasing. Make sure that none of the speaker connections can touch the vehicle chassis.
9. Connect the RCA inputs to the appropriate signal source, using only the highest quality RCA cables.
10. Make sure that the RCA and speaker cables do not run parallel to the +12v wiring.

CONNECTIONS

2 CHANNEL AMPLIFIER ● BASIC SYSTEM WIRING

● **MD 23**

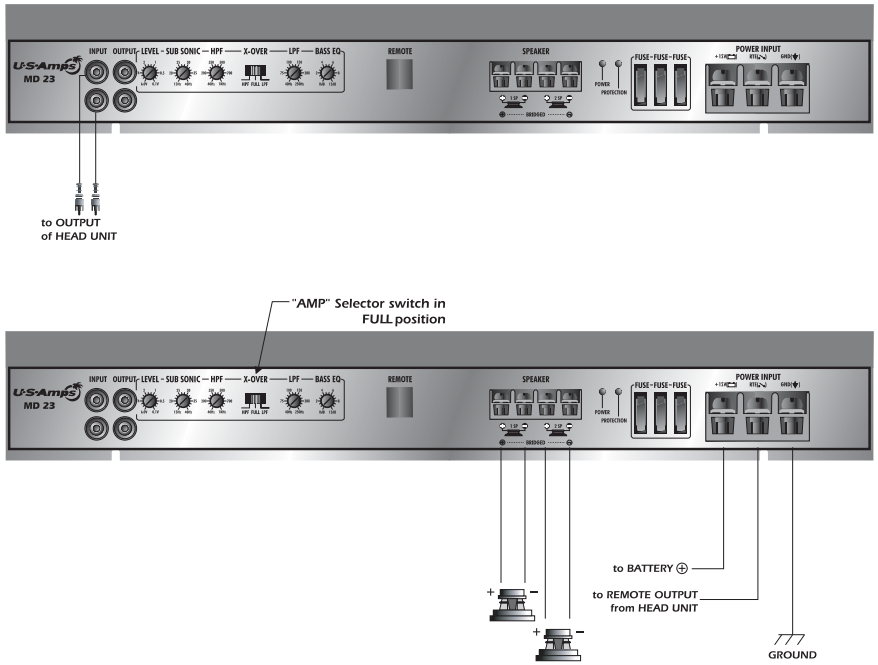


Figure 1

CONNECTIONS

2 CHANNEL AMPLIFIER ● BRIDGED SYSTEM WIRING

● **MD 23**

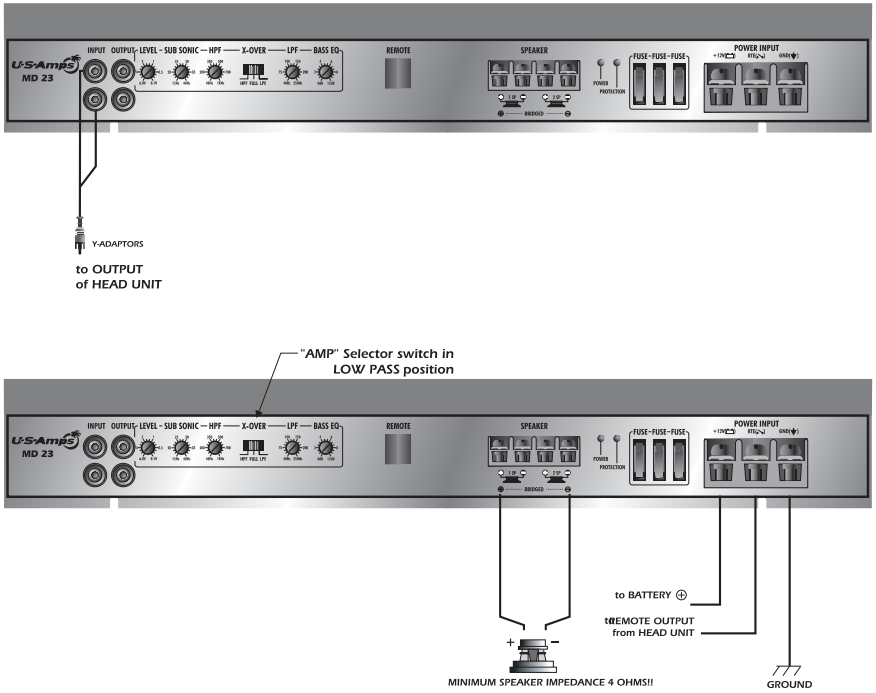


Figure 2

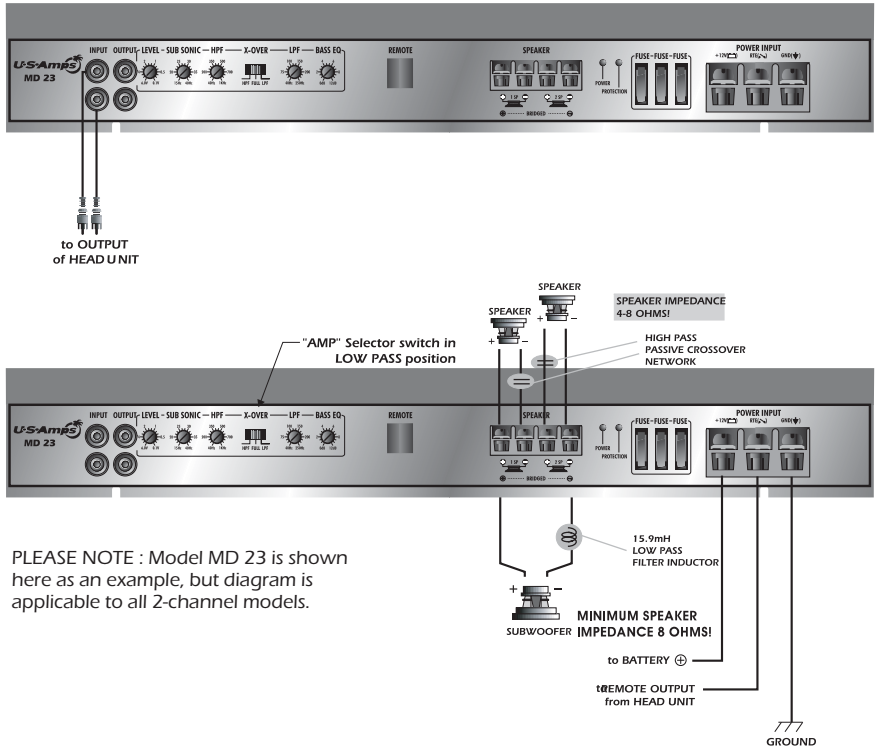
CONNECTIONS

2 CHANNEL AMPLIFIER ● TRI-MODE SPEAKER WIRING

● **MD 23**

Tri-Mode Operation Output is a unique feature which allows a Subwoofer to be operated in MONO mode, while the main speakers are playing in STEREO.

To engage the amplifier in this mode,place the Crossover Selector switch in the"FLAT" position.Use a high pass passive crossover network for each of the right and left speakers, and a15.9mH low pass wire coil filter inductor to block high frequencies from the subwoofer as shown in the figure below.



PLEASE NOTE : Model MD 23 is shown here as an example, but diagram is applicable to all 2-channel models.

Figure 3

CONNECTIONS

2 CHANNEL AMPLIFIER ● BIAMP SYSTEM WIRING

● MD 23

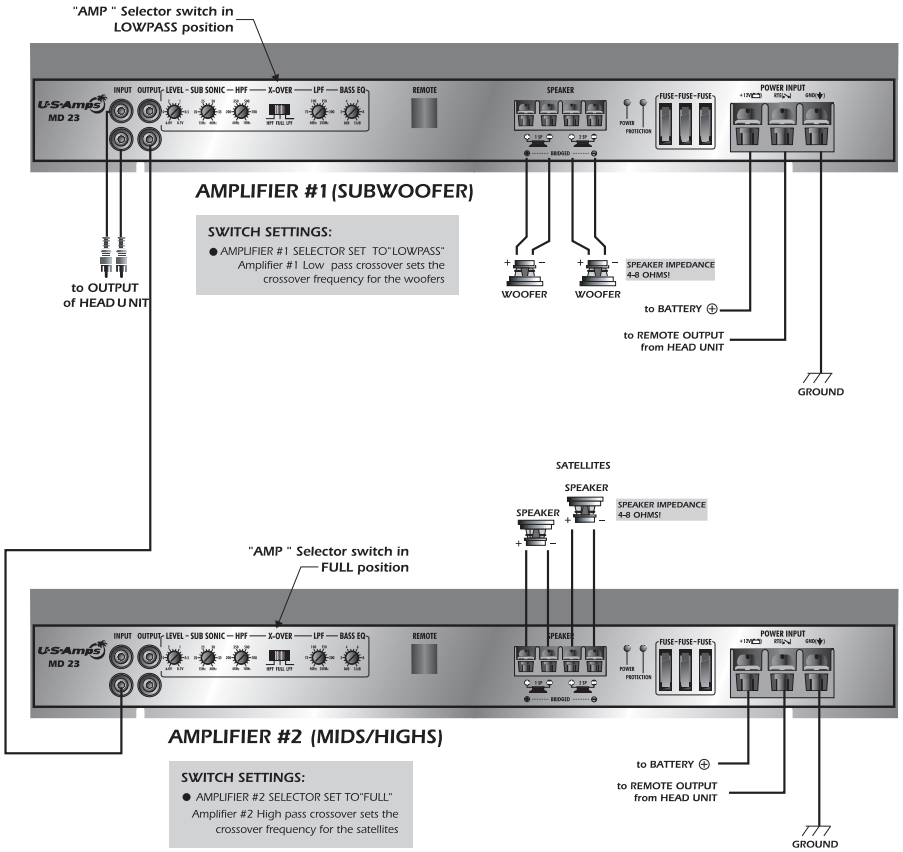
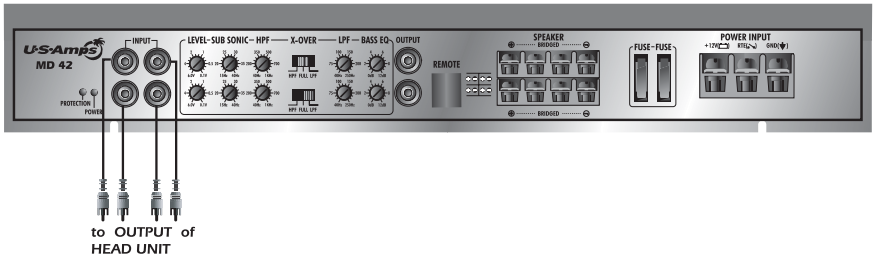


Figure 4

CONNECTIONS

4 CHANNEL AMPLIFIERS ● BASIC SYSTEM WIRING

● MD 42 ●MD 41



PLEASE NOTE : Model MD 42 is shown here as an example, but diagram is applicable to all 4-channel models.

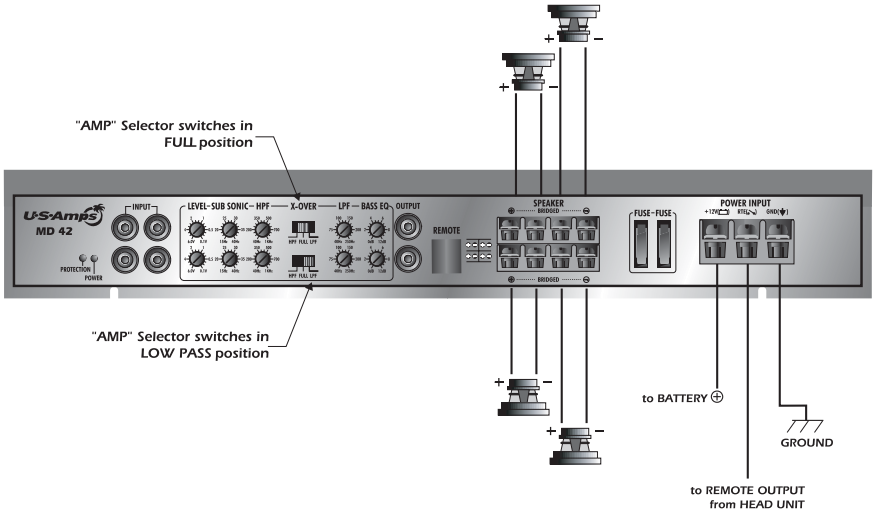


Figure 5

CONNECTIONS

4 CHANNEL AMPLIFIERS ● BRIDGED SYSTEM WIRING

● **MD 42** ●**MD 41**

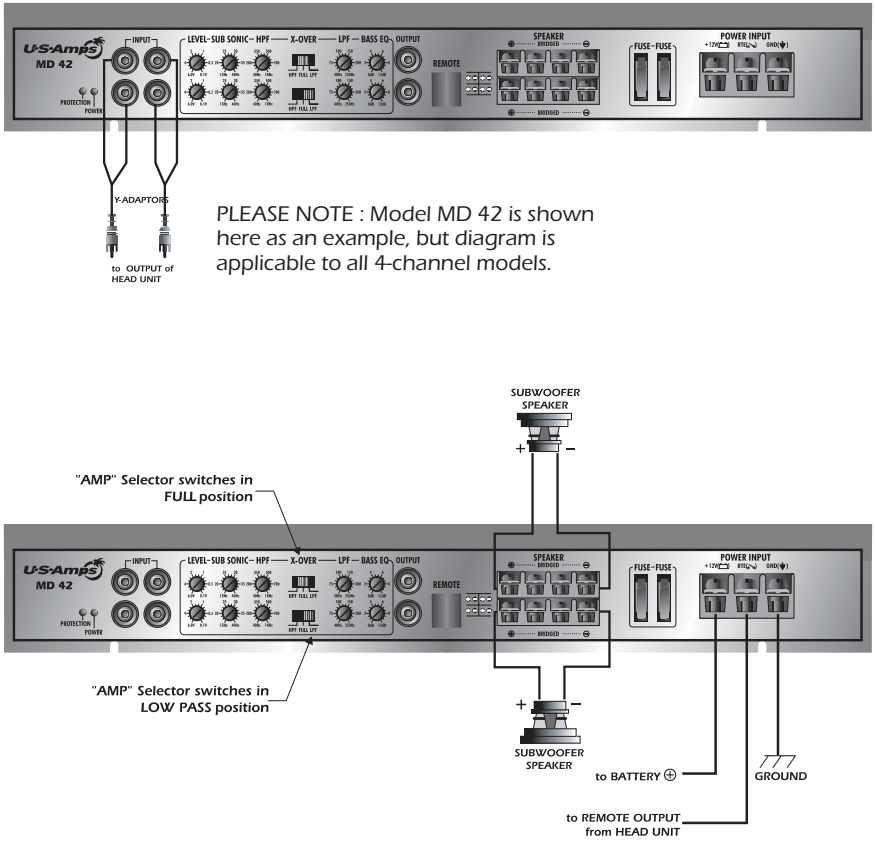


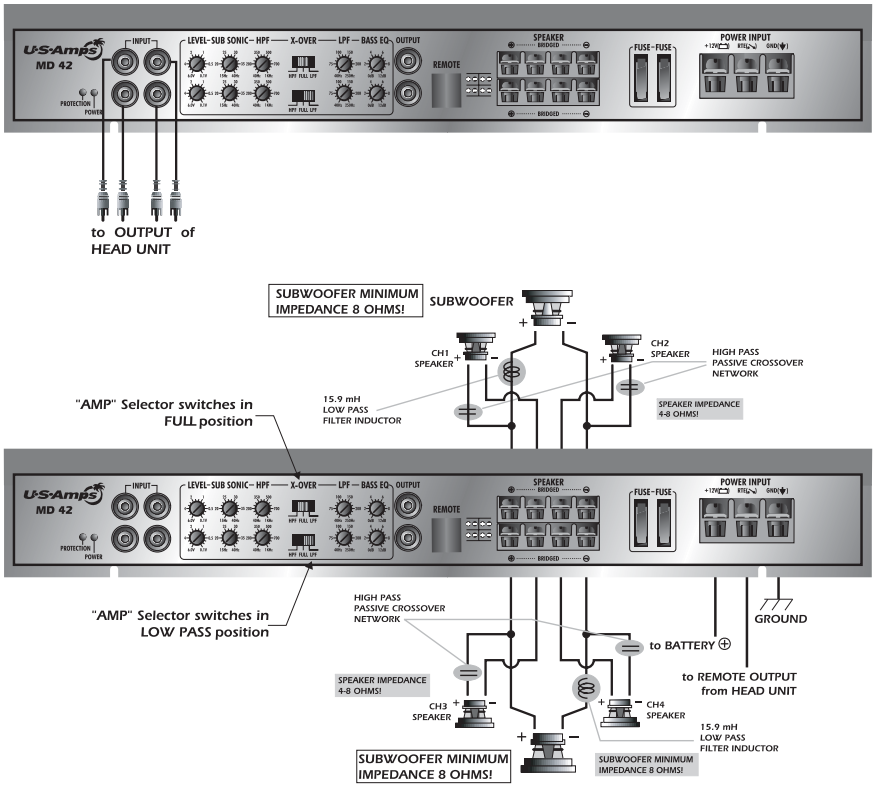
Figure 6

CONNECTIONS

4 CHANNEL AMPLIFIERS ● DUAL TRI-MODE WIRING

● **MD 42** ●**MD 41**

Tri-Mode Operational Output is a unique feature which allows a Subwoofer to be operated in MONO mode, while the main speakers are playing in STEREO.

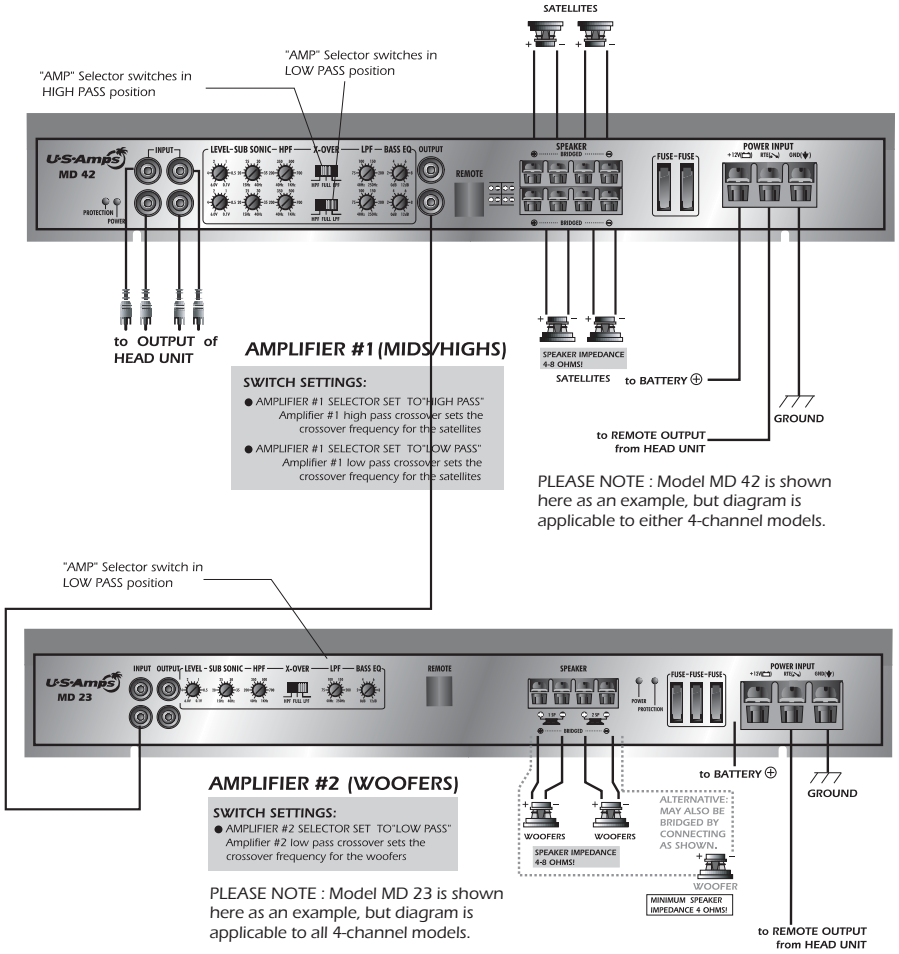


PLEASE NOTE : Model MD 42 is shown here as an example, but diagram is applicable to all 4-channel models.

Figure 7

CONNECTIONS

● **MD 42** ● **MD 23** BRIDGED SYSTEM WIRING



PLEASE NOTE : Model MD 42 is shown here as an example, but diagram is applicable to either 4-channel models.

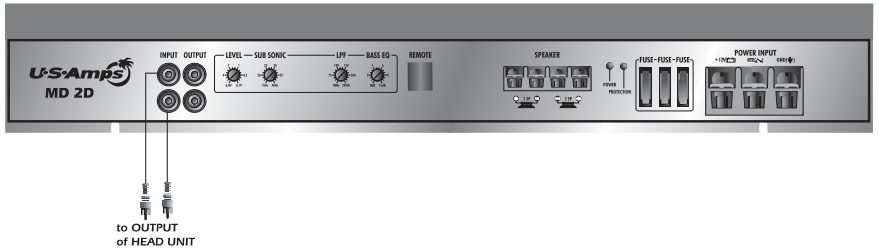
PLEASE NOTE : Model MD 23 is shown here as an example, but diagram is applicable to all 4-channel models.

Figure 8

CONNECTIONS

1 CHANNEL AMPLIFIERS ● BASIC SYSTEM WIRING

● **MD 3D** ● **MD 2D** ● **MD 1D**



PLEASE NOTE : Model MD 2D is shown here as an example, but diagram is applicable to all 4-channel models.

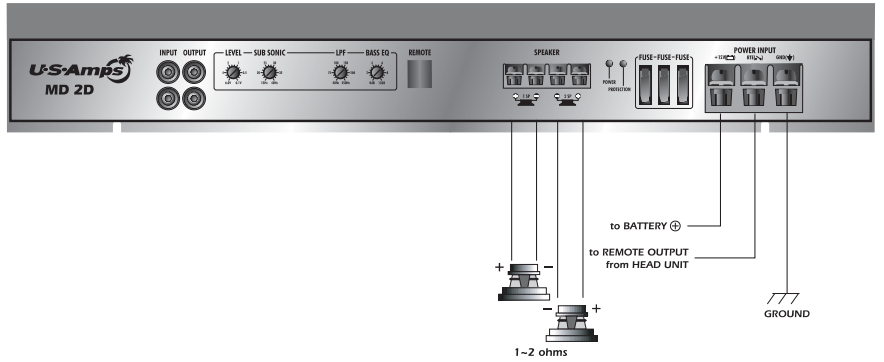


Figure 9

TROUBLESHOOTING

Before removing your amplifier, refer to the list below and follow the suggested procedures. Always test the speakers and their wires first.

No Output

Confirm that all terminal strip connections are secure and tight.

Check both in-line and built-in fuses.

Confirm that the audio signal source (car radio, equalizer, etc.) is connected and is supplying output signal. To check if the amplifier is supplying signal, unplug the RCA cables from the signal source (but leave them plugged into the amp). Briefly tap the center pin of each of the disconnected RCA plugs with your finger. This should produce a noise (feedback) in your speakers.

Only one channel works

Confirm that all terminal strip connections are secure and tight.

Check the"BALANCE" control on the head unit(or other source) to verify that it is set to its mid point

If you are using the Low Level RCA input, reverse the input plugs at the amplifier(switch the R with the L). If the channel which is silent switches to the other side, the problem is either in the head unit/other source or the connecting cables.

Weak output

Re-adjust the Input Level Control to better suit the input signal.

Noise in the Audio

If the noise is a "whine" whose pitch follows the engine speed, confirm that the amplifier and any other signal sources(head unit, etc.)are properly grounded.

If the noise is a "clicking" or "popping" noise whose rate follows the engine speed, this usually means that the vehicle is equipped with resistor spark plugs and wires, or that the ignition is in need of service.

Check the routing of the speaker and input wires to make sure they are not adjacent to wires which interconnect with lights and other accessories.

If the above steps fail to improve or clear noise interference, the system should be checked by a authorized **U.S.Amps** dealer.

CAUTION!

Jump starting your vehicle can cause large voltage spikes within your automobile's electrical system. To prevent damage to your stereo system, make sure the entire system is shut down until full battery charge has been reached and jumper cables have been removed from the battery.

We want you listening for a lifetime!

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud sound is often undetectable until it is too late, **U.S.Amps** and the Electronic Industry Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive loud sound.

dB level	example
30	Quiet library, soft whispers
40	Living room, refrigerator, away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at 2 feet

The following noises can be dangerous under constant exposure

90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.

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