

MAGNEPLANAR® MG-10/QR

INSTRUCTION MANUAL

MAGNEPLANAR PRODUCTS

WHITE BEAR LAKE, MN 55110

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I. MG-10 Setup--SAVE ALL PACKAGING!

- A. Install 2 brackets on each base as shown in Figure A, using 5/8" bolts. Install 2, 1-3/4" leveling bolts with caps on each base, and install protective caps on the bottom tip of each bolt. Using 4, 1-1/4" bolts for each speaker, attach the speaker to the brackets. (To avoid cross threading, use your fingers to start the bolts into the panel.)

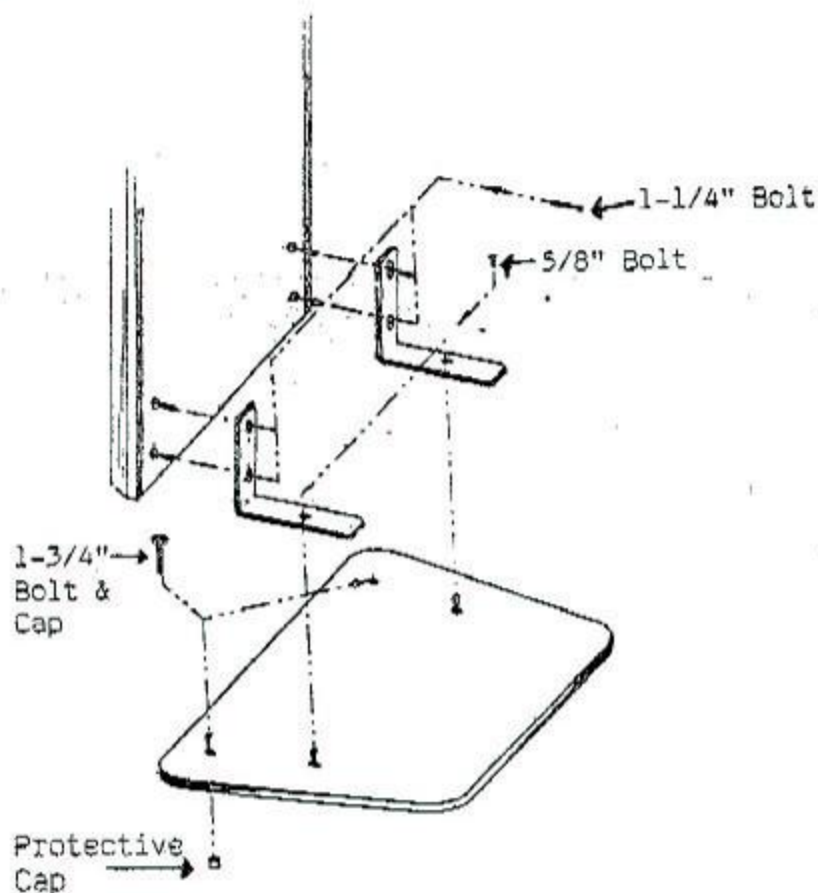


Figure A

- The leveling bolts are provided to level the speaker panel so the speaker can be made parallel to walls and furniture, etc..
- B. The MG-10 employs a unique, high-current connector. Simply strip approximately 1/4 inch of insulation from the speaker cable end

and insert it into the connector and tighten the screw.

Magnepan encourages the use of large gauge speaker wire (preferably 16 gauge or larger).

TO INSURE PROPER PHASING OF THE SPEAKER, MAKE SURE PLUS IS TO PLUS AND MINUS IS TO MINUS.

- C. Your speakers come in matched pairs and are mirror-imaged. The serial number for each speaker in the pair is the same, except a "1" or "2" follows each serial number. Facing the front of the speakers, place speaker "1" on the right and "2" on the left. This places the tweeters nearest the inner edges of the speakers.
- D. Locate the speakers approximately 3 feet in front of a wall. If placement of less than 3 feet from the wall is desired, see Midbass Adjustment on Page 8.
- E. The distance between the speakers should be approximately 60% of the distance you will be from the speakers when you listen to them, for example: if you will be 10 feet from the speakers, position them about 6 feet apart.
- F. Position your speakers directly at your listening position.

II. CAUTION--CAUTION--CAUTION

- A. These speakers are shipped with 4 amp normal blow fuses in line with the tweeters. The midbass section does not require fusing protection. This fuse value should never be increased or by-passed. Do not use slow-blow fuses. If these precautions are taken, our destruct tests show that it is impossible to burn out these drivers.

BURNED OUT TWEETERS ARE NOT COVERED UNDER THE WARRANTY.

- B. For owners of cats, we recommend cat repellent around the base of the speakers.

III. Optional Tweeter Attenuation

There are three reasons for possibly needing to attenuate the tweeters in your MG-10's.

- A. Recordings typically in the "pop" or "rock" vein often exhibit a pronounced rise in the treble region.

B. The Magneplanar Quasi Ribbon Tweeter is very efficient in it's total energy dispersion.

C. Room acoustics which are too "live" and reflective.

Attenuation is accomplished by placing attenuator devices in the attenuator position on the connection plate. See Figure B.

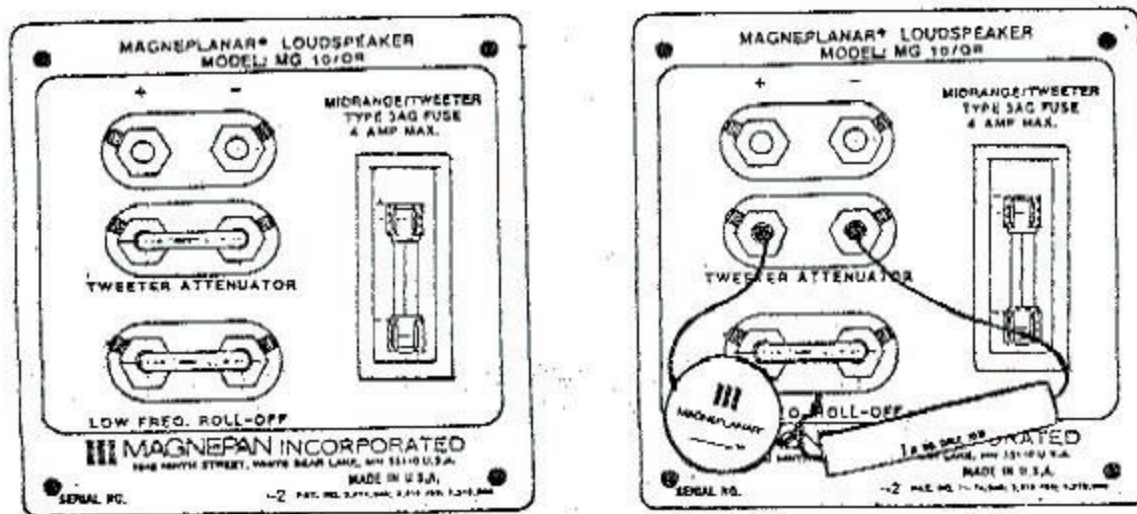


Figure B

Two attenuator devices are provided with your speakers--a .03mh coil and a 1 ohm resistor. These two devices will provide three levels of attenuation. They are:

- A. The least amount is obtained by installing the .03mh coil. Simply replace the jumper with the coil. This should take care of recordings with tipped up high ends.
- B. The next degree of attenuation is obtained by installing the 1 ohm resistor. This should take care of most slightly bright rooms.
- C. The most drastic measure is to use both the coil and the resistor in series. Attach one end of each device to one attenuator connector and twist the loose ends together. (See Figure B)

IV. Room Acoustics

In addition to the irritation of the excessive high frequencies, a room

that is overly "bright" or "alive" will usually give the sound a "blurred" or "confused" effect. On the other hand, an overly "dead" room usually robs the sound of the aliveness and inner detail that can make you "think you are there."

You can determine which type of room you have by doing what acoustical engineers do when they are without their test equipment--they walk around a room while making an occasional loud clap with their hands. If you do this at different locations in your room, and listen to the sound that bounces back at you from the room boundaries, you can get a pretty good idea of what your room is like. If you hear a tailing "zing" after the loud clap, you can be quite certain you have a "bright" room and you may need to consider some type of wall treatment. The worst offenders in a "bright" room are bare glass windows and doors, and hard paneling. This is particularly true if two opposite walls are parallel and made of these materials. You can experiment by opening and closing drapes or hanging a blanket over these areas. There are commercial materials available that your Magneplanar Dealer can help you with. One word of caution--don't go overboard. You should avoid a room that is too dead--moderation is the word. If you hear only the loud "thud" of a hand clap, you probably have a pretty "dead" room. About the only thing you can do for a dead room, short of major construction, is to try leaving drapes open or removing absorptive materials.

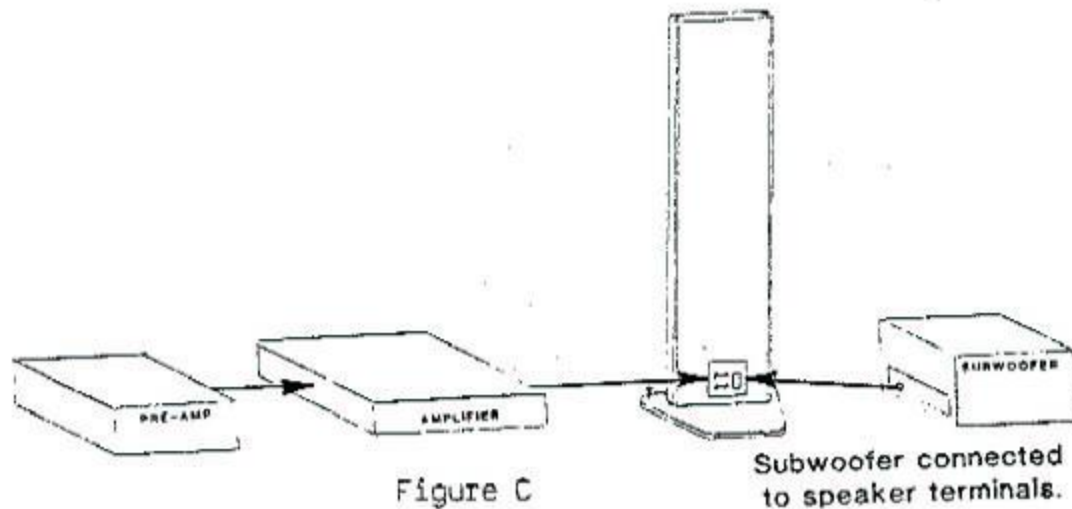
V. Recommended Subwoofers

With all the variables in subwoofer design, few concrete recommendations can be given. However, as a general rule, smaller subwoofer drivers (12" or less), achieve the best blend with the MG-10.

VI. Subwoofer Setup

See your subwoofer setup manual. The MG-10 should be connected directly to the amplifier (operated wide band). However, the MG-10 does not reproduce frequencies below 80Hz and requires the use of a subwoofer for

80Hz and below. Use the section which describes setup with a full-range speaker. Despite the fact that the MG-10 does not produce frequencies below 80Hz, the electrical hookup is the same as if it were a "full-range" speaker. For the best sound quality, do not use the high pass section of the subwoofer. See Figure C.



With this hookup, frequencies above 80Hz have the most direct path to the MG-10's.

All rooms create "standing waves" at low frequencies, and the subwoofer must be placed to reduce standing waves so that all frequencies can be heard. When subwoofers are moved well into the room (away from boundaries), and measured near field (less than 3 feet), the subwoofer's true frequency response can be seen. Many of the better quality units measure very flat. However, the high quality is largely wasted if the subwoofer is placed in a position where it becomes a "one note boom box."

With most improper setups, there is a huge peak in the 25-30Hz region, followed by a big dip from 40-80Hz. (40-80Hz does not sound like much, but it is one entire octave.) Most of what we perceive as bass is in this region. When a subwoofer is set up to play just one note, the subjective effect is that the MG-10's sound "lean" or "cold." The deepest rumblings are there, but an entire octave of bass is missing. An inexpensive Radio Shack sound pressure meter and a frequency sweep on a test CD can verify the frequency response. IT IS CRITICAL TO THE

ENJOYMENT OF THE MG-10'S THAT THE FREQUENCIES BETWEEN 40-80HZ OF THE SUBWOOFER BE PROPERLY BALANCED.

There is a popular misconception that a peak in the 20Hz region is not harmful because there is very little musical content that low. As the reasoning goes, when a true 20Hz does not come along, the peak makes one feel like they got their money's worth from the subwoofer. However, a number of instruments contain some information in the 20Hz region that is at a low level. When it is boosted by the 20Hz peak from the subwoofer, the instrument takes on an overblown quality that is impressive at first, but eventually causes listener fatigue.

There are primarily 3 options with subwoofer placement:

- A. Place one (preferrably 2) subwoofers in the optimum position for smooth response.
- B. Place the subwoofer where the response is bad and put an equalizer on the subwoofer only (not in series with the MG-10 to avoid sonic degradation).
- C. Place the subwoofer where the response is bad and keep turning the bass up until the dip is filled in. (Unfortunately the peak can become very offensive.)

VII. Optimum Subwoofer Placement

Proper placement is best done with a 1/3 octave spectrum analyzer. Integration with the faster subwoofers can be so smooth when amplitude and phase are perfect, that sophisticated audiophiles are hard-pressed to find the "seam" between the MG-10 and the subwoofer. (See Figure D on next page.)

Proper placement by ear is difficult and slow, but it can be done. The ear/brain is very good at sensing that something is wrong, but poor at isolating the problem. Without the aid of a 1/3 octave spectrum analyzer, surprisingly good results can be had by using your ear as a

"spectrum analyzer." (Numerous individuals have been tested with the following technique and most come reasonably close to achieving flat response.)

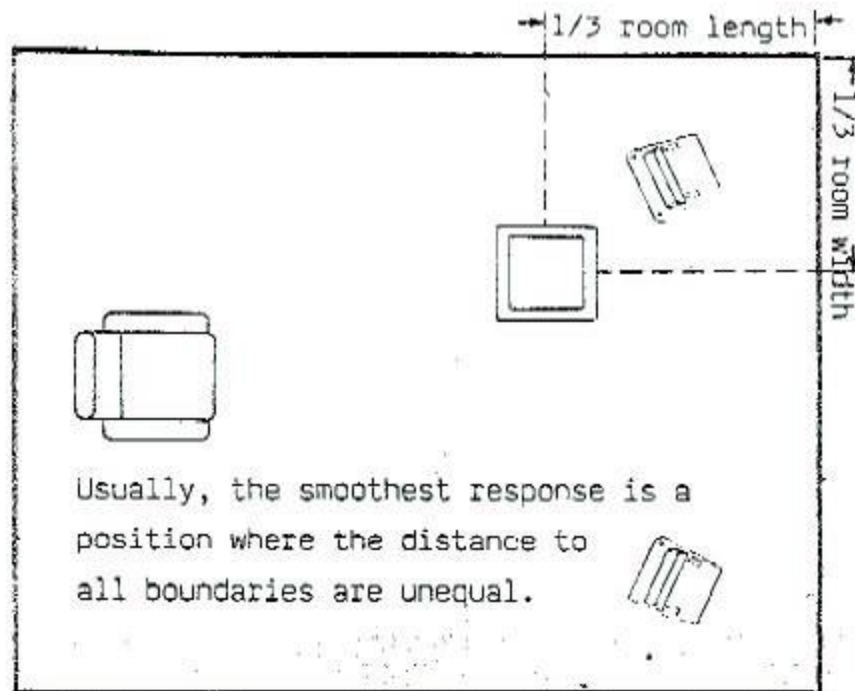


Figure D

- A. With a subwoofer that is known to have flat response, move the subwoofer well out into the room (away from boundaries).
- B. Set the subwoofer crossover at 80Hz. Play "pink noise" from a test CD through the subwoofer only. Listen to the sound of the pink noise in the near field (about 3 feet) and make a mental note of the ratio of the lower frequencies to the higher frequencies.
- C. Place the subwoofer in the desired position and listen to the pink noise through the subwoofer at the listening position (adjust the volume for the distance).

With practice the listener can instantly tell when the pink noise sounds wrong. This is a faster technique than using music because recordings vary greatly, and not every recording has a bass line that will hit the peaks and dips of the room.

Once the subwoofer has been properly placed, adjust the overall level by listening to acoustical bass instruments. Use at least 3 or 4 different recordings to come up with an average setting. The ear is surprisingly sensitive to overall bass levels. Even inexperienced listeners can get close to a flat setting by listening to acoustical bass instruments.

VIII. Phasing

The ear is extremely sensitive to amplitude response and less so to phase. Phase/time alignment should be adjusted by placing the subwoofer in the same plane as the MG-10's, but only if smooth amplitude response can also be maintained. (It would be better to have the subwoofer placed behind the listener than to have perfect time alignment with bad amplitude response.)

An increasing number of subwoofers incorporate a variable phase control. Reverse the polarity of the MG-10's with respect to the subwoofer to determine if they are in phase with the subwoofer.

IX. Equalizers

Equalizers have fallen out of favor with audiophiles in recent years. The sonic degradation and phase shift is unacceptable over much of the audio band. Equalizers have an important role when the only placement for the subwoofer (for cosmetic reasons) produces very bad amplitude response. By using an equalizer in line with only the subwoofer, the sound from the MG-10 is unaffected.

Subwoofer manufacturers are aware that many of their products are set up next to room boundaries with poor frequency response. In the future, more units will have equalization capability built into the subwoofer electronics.

X. MG-10 Midbass Adjustment

In some installations, especially when the MG-10 is placed close to a rear wall, there may be too much output in the 100-150Hz region.

Capacitors may be installed as shown in Figure E, to reduce excessive output. The smaller the capacitor value, the greater the reduction in the midbass. Values of 200 to 300 mfd are most commonly used to reduce midbass output.

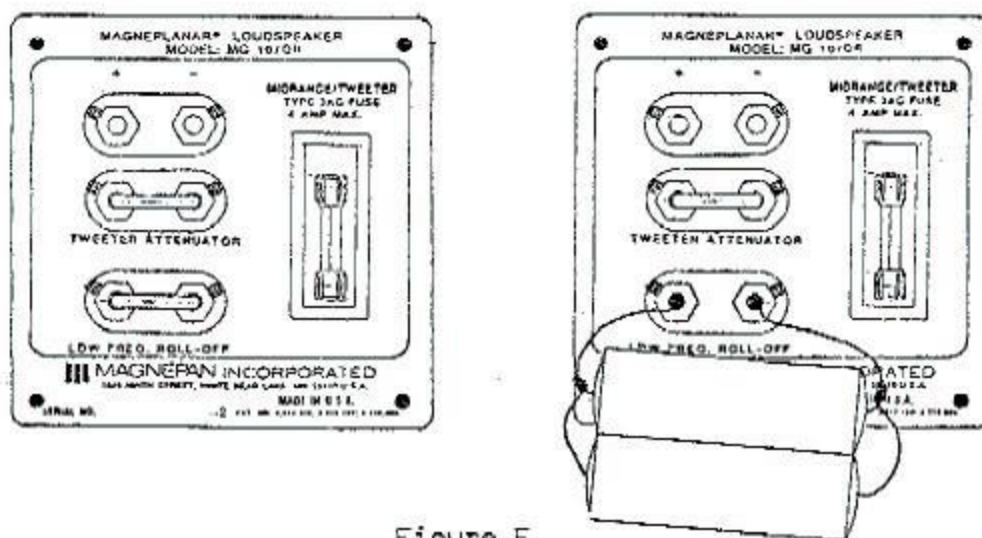


Figure E

Achieving smooth response is best done with a $1/3$ octave spectrum analyzer; however, reasonably good results can be achieved by ear. Avoid reducing the midbass too much, or a hole in the frequency response can develop between the MG-10 and the subwoofer. The appropriate capacitors are available from Magneplanar.

When the MG-10 is operated wide band (no crossover to roll off the bass below 80Hz), large amplifiers may cause the diaphragm to strike the magnets when playing low frequencies at very loud levels. One option is to use the high pass section of the subwoofer to roll off the low frequencies going to the MG-10. The second option is to put 200 mfd capacitors in the low frequency rolloff terminals.

XI. Bass Overlap

While rated to 80Hz, the MG-10 will hold up well to 60Hz in some rooms. If the subwoofer has smooth response and is set at 80Hz, this can cause a significant bump in the response between 60 and 80Hz. While

the ear can detect a problem like this, a 1/3 octave analyzer is indispensable in locating and correcting overlap (or gaps) between the subwoofer and MG-10.

XII. Specifications

System Description: 2-Way Dipole
Bass Radiating Area: 340 Sq. In.
Quasi Ribbon Tweeter Size: 1-1/2" X 55"
Frequency Response: 80-22,000Hz
Normal Power Requirement: 100 Watts RMS 8 Ohms
Maximum Power Requirements: 250 Watts RMS 8 Ohms
Sensitivity: 86dB, 1 Watt/1 Meter
Impedance: 4 Ohms
Crossover System: 6dB @1100Hz
Dimensions: 10-1/2" X 63" X 2"
Warranty: Limited. Non-transferrable. 3 Years
Shipping Weight: 55 Lbs.