MAGNEPAN
INCORPORATED

MAGNEPLANAR TYMPANI-IVa

Instruction Manual

MAGNEPLANAR® PRODUCTS
WHITE BEAR LAKE, MINNESOTA 55110

MAGNEPLANAR® TYMPANI-IVa

INSTRUCTION MANUAL

1. GENERAL DESCRIPTION

The Magneplanar®Tympani-IVa is a three-way system, mounted in a three-panel floor screen. One panel contains a patented, 5-foot long ribbon tweeter and a special planar-magnetic midrange driver. The remaining two panels are planar-magnetic bass drivers.

The crossover components between the bass and midrange/tweeter are housed in a pair of external crossover boxes. The midrange to treble crossover components are housed in the tweeter/midrange panel, and are non-defeatable.

Although the T-IVa system is set up for conventional amplification (one stereo amplifier), the loudspeakers provide for bi-amplification as an option.

2. ACCESSORY CARTON CONTENTS

8 - Speaker support feet
16 - Speaker support bolts
2 - 2½ amp. normal blow fuses (tweeter)
2 - 3 amp. normal blow fuses (midrange)
2 - External crossover boxes
6 - Extra hinges
24 - Hinge screws
1 - 1/8" Allen wrench
2 - Magneplanar emblems

3. SPEAKER UNPACKING AND ASSEMBLY

UNPACKING SPEAKER

Do not pull a speaker abruptly from the carton. The resulting partial vacuum could burst the ribbon. Do not remove the tweeter protector strip until the speaker is completely assembled.

Please save all packing materials. Speakers should be reboxed using original packaging before transporting.

SPEAKER ASSEMBLY

Eight support feet for the T-IVa speakers are shipped in two accessory cartons. If the speakers are set up with their tweeter/mid panels separated, as shipped, two feet must be attached to each tweeter/mid-range panel, and one foot to the outer edge of each bass panel (Diagram, Page 7). If the tweeter/mid panels are hinged to the bass panels, then only two feet are needed per side. Attach one foot to the outer edge of the tweeter/mid panel, and the other foot to the outer edge of the outer bass panel (Page 6).

SUPPORT FEET INSTALLATION

A. Stand speakers on a hard surfaced floor, with one panel hinged forward and one panel hinged backward to prevent the speakers from tipping over. We suggest that you have a second person hold the speakers during installation to ensure they do not fall.

B. Locate the holes in the fabric along lower backside of the panels.

C. Carefully slide a foot from the backside under the panel so the holes in the foot align with the holes in the panel. Insert bolts through the foot and into the panel until they engage T-nuts in the panel. Tighten with a Phillips #2 screwdriver. Care should be taken so that the bolts are not cross-threaded or pushed on with enough force to push T-nuts out the front side of the panel. If this should happen, push T-nut back in hile and hold while tightening bolt.

D. Repeat Step C for remaining feet.

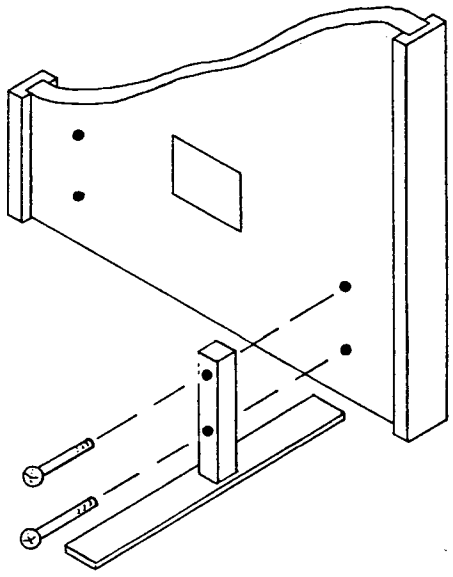


Figure 1

4. HOOKUP

This section covers amplification with a single stereo amplifier. For instruction on bi-amplification refer to Section 9.

The T-IVa features new, high-current cable connectors which provide optimum contact area with speaker cables up to 8 gauge. To prepare cables, strip ½" of insulation from the end of the cable. Insert the bare wire into the connector and tighten the set-screw with the Allen wrench provided. Adaptors are available for using banana plugs, but we do not recommend their use.

Connect the amplifier speaker cable to the input of the T-IVa external crossover box. Cut a short length (2-3 feet) of speaker cable and connect the mid/treble output of the crossover box to the mid/treble inputs on the speaker panel. Repeat this step between the bass output of crossover and the T-IVa bass inputs. Take special precautions to ensure correct polarity on all speaker cable connections. Most speaker cables have some sort of coding on one lead, either printing, colors, or a "rib" to help in maining polarity.

Every connection point on the outboard crossover and speaker is color-coded red or black, and marked positive (+) or negative (-). Make a choice as to which lead is either positive or negative, and make sure all connections are consistent with this marking.

DOUBLE-CHECK YOUR CONNECTIONS! THERE ARE 20 CONNECTIONS TO MAKE ON YOUR T IVa. One mistake will put your system partially or totally out of phase.

5. IMPORTANT PRECAUTIONS

FRAGILE! The foil element in the ribbon tweeter is quite fragile. Handle the speaker panel with care. Do not drop them flat on the floor. Air pressure can rupture the element.

RUPTURED RIBBON ELEMENTS ARE NOT COVERED UNDER THE WARRANTY.

ULTRAVIOLET DAMAGE

The diaphragm side of the planar-magnetic drivers should not be exposed to ultratiolet light for long periods of time. Sunlight is the worst, but skylight is almost as bad. Long exposure to strong flourescent lights can also be a problem.

FUSING

The mid and treble sections of the T-IVa are protected with 3 amp and 2½ amp normal blow fuses respectively. (The bass section does not require fusing protection.) The fuse value should never be increased or bypassed. Do not use slow-blow fuses. Fuses remain in effect when bi-amplifying. This is done for your protection since it prevents overdriving from an amplifier, or the distortion that results from an overdriver amplifier (clipping).

BURNED OUT MID OR TREBLE SECTIONS ARE NOT COVERED UNDER THE WARRANTY.

6. SPEAKER PLACEMENT

Proper speaker placement and room acoustics can have more effect on a music system than upgrading one of the components in the system. Unfortunately, there is no definitive guideline which will cover all possible listening rooms. Considerable experimentation is required for locating the optimum position. The following are a few general guidelines:

A. Place speakers with tweeters on the inside.

B. BASS RESPONSE--If you do not have access to a spectrum analyzer, play a record with a repetitive bass line (preferrably an acoustical bass instrument). Try the speakers in several parts of the room. Start experimenting with the speakers about 3 feet from the back wall. Try moving the speakers forward or backward by increments of 6 to 12 inches at a time. One part of the room should be noticeably better than the rest, as should one distance from the rear wall.

C. STEREO WIDTH AND IMAGING--Once you have located the best position for the speakers and your chair for good bass performance, separate

the tweeters by 50% of the distance from your chair to the speakers. (For example, if your chair is 10 feet from the speakers, move the tweeters 5 feet apart.) Now move the speakers apart in increments of 3 or 4 inches at a time, listening carefully at each position. At some point you will start to hear two separate speakers instead of getting a "stage effect" (or continuous image). If you have a hole-in-the-middle effect, your speakers are too far apart: begin moving the speakers closer together in small increments until you notice a point at which you achieve one cohesive "sound stage."

D. SPEAKER PHASING/PANEL ORIENTATION--For optimum phasing between the tweeter and midrange, align the tweeters on axis (perpendicular) to the listening position, as shown in Figures 2 and 3.

For phasing between the tweeter/midrange and bass, align each bass panel with each edge of the listening position (slightly off axis), as shown in Figures 2 and 3.

We recommend that you experiment with the tweeters on the inside: most T-IVa owners find that inside tweeter placements work best in their listening rooms. Phasing with tweeters on the inside is accomplished with the same panel angles as outside tweeter placement. (Figure 3)

Once you have located the ideal speaker position you should mark it. A small tack or piece of tape can be attached to the carpet so that the ideal spot can be easily relocated when the speakers (or chair) are moved for cleaning, etc.

The entire placement procedure may seem like a great deal of work, but is necessary in the set-up of any high quality system. The time and effort expended should only be necessary once, and will repay the owner with countless hours of musical enjoyment.

TWEETERS ON THE INSIDE:

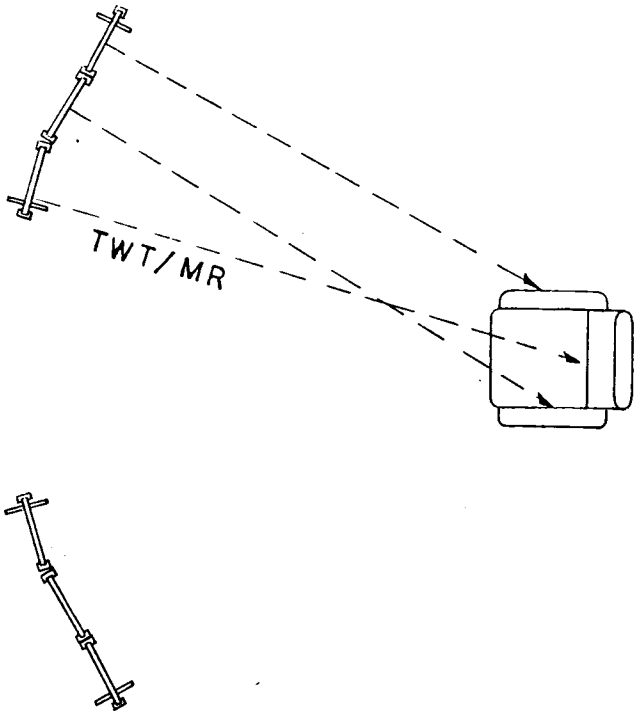


Figure 2

TWEETERS ON THE OUTSIDE:

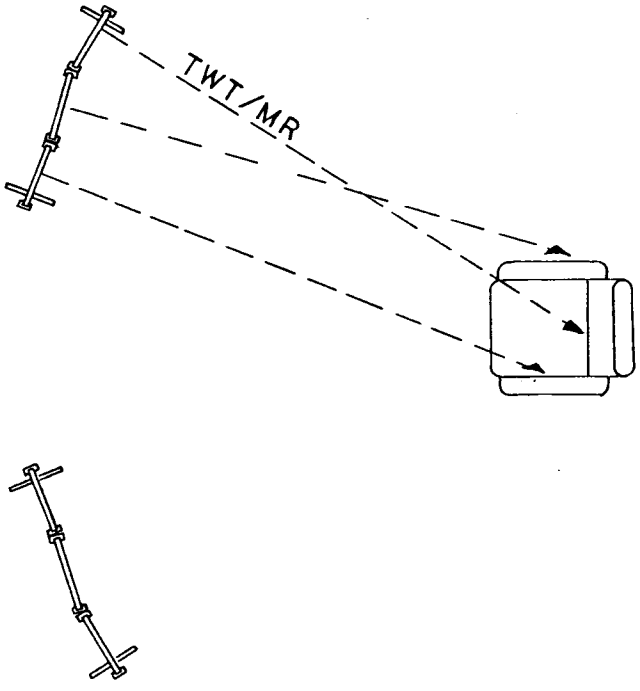
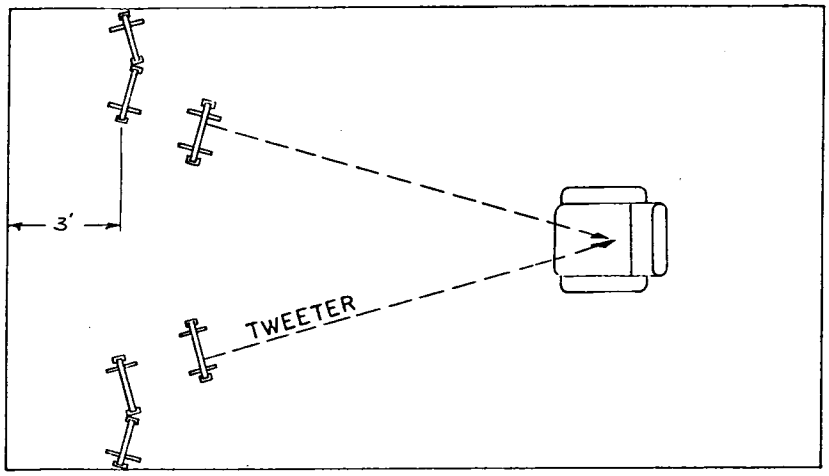


Figure 3

7. SPEAKER PLACEMENT IN NARROW ROOMS

There is an alternative speaker setup for use in rooms that do not allow adequate space between the speakers, or where furniture placement might be a problem. This can provide the listener with a better sense of stereo "depth," and minimize "boxing in" the rear wave from the speakers.

In this configuration the two bass panels on each side are unhinged from the attached mid/tweeter panels. The edge of the bass panels can be placed against the outside wall. The bass panel with the input terminal should be the one placed next to the wall. The mid/tweeter panels can then be placed slightly in front of the bass panels. This is a rough guideline. From this point the procedures outlined in Section 6 for adjusting bass response and imaging can be followed. The bass panels should be about three feet or more from the back wall. The tweeters may be placed on the inside or outside, depending on the adjustment for image width, as stated previously. IMPORTANT: If this set-up procedure is used, try hooking up the mid/tweeter panels out of phase with respect to the bass panels. In their normal configuration the midrange and bass panels are adjacent and have the same time alignment from the listening position. When these panels are separated there may be a need to correct for the difference in the time alignment by reversing the phase of the tweeter/mid panels. This means that the speaker wires going into the terminal place on the back of the mid/tweeter panels must be reversed (positive wire to negative terminal, and vice versa).



8. ROOM ACOUSTICS

Magneplanars, like other bipolar speakers, usually sound best with a moderately reflective surface behind the speakers. In situations where the speakers must be placed closer than 2 feet from the back wall, a heavy damping material directly behind the speakers is advised; however, it should not cover the entire wall. This could overdampen the room.

Using damping material in other parts of the room is a matter of trial and error due to the varying characteristics of each room. A word of caution--when audiophiles discover the effectiveness of damping material, they sometimes overdo it (on the premise that if a little is good, more is better). Before you make a permanent change to your room, experiment with the positioning of the damping material. Usually, a portion of one of two parallel walls should have some damping, whether it is a rug, books, wall hanging, or special material.

An overdamped room will provide very precise imaging, but you will have a reduced sense of ambience (less reverberation, spaciousness). An underdamped room may heighten the illusion of being in a concert hall, but the imaging will seem imprecise with all the instruments mixed together. Moderation is the word.

9. BI-AMPLIFICATION

The T-IVa is arranged conveniently for bi-amplification. By adding an additional stereo amplifier and a crossover you can enjoy the benefits of increased dynamic range and lower distortion.

The following is a description of two methods of bi-amplifying your T-IVa:

A. BI-AMPLIFICATION WITH MAGNEPLANAR XO-1--(Available from your Magneplanar dealer.) The XO-1 utilizes a simple, high-quality capacitor network for the midrange/tweeter section, and is used in conjunction with the low-pass portion of the external crossover for the bass section. This allows the least amount of signal processing, giving

the purest possible reproduction of all frequencies. The XO-1 includes controls to balance the bass amp to the mid/treble amp.

SEE THE XO-1 INSTRUCTION MANUAL FOR SPECIFIC INSTRUCTIONS AND PRECAUTIONS.

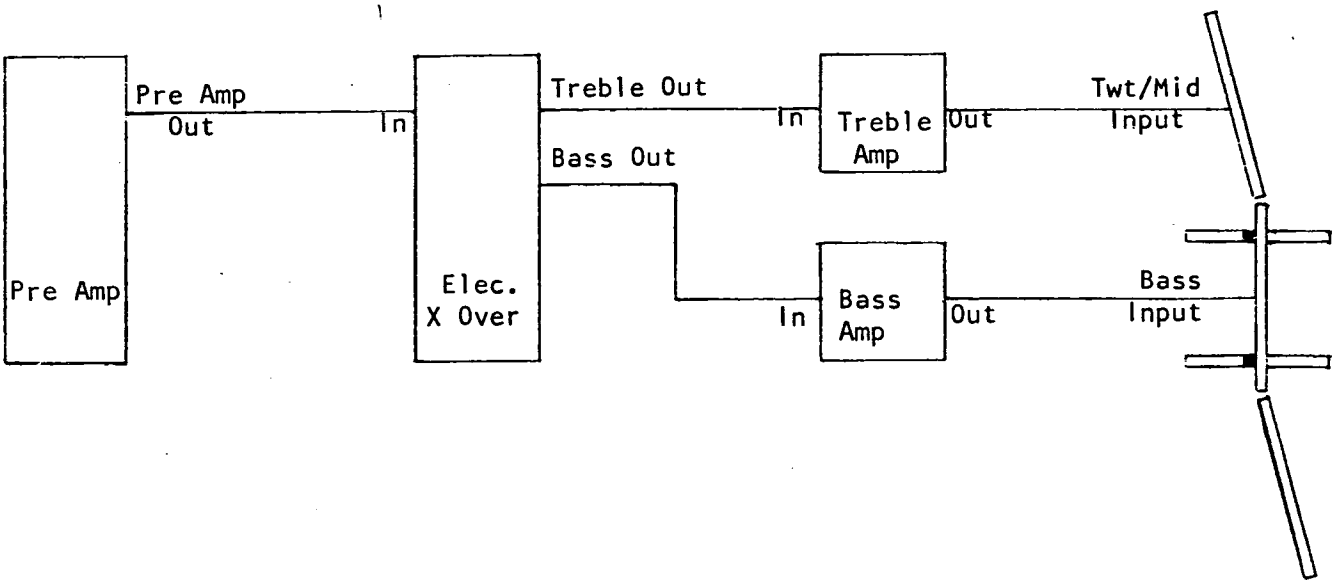
B. BI-AMPLIFICATION WITH CONVENTIONAL ELECTRONIC CROSSOVER

1. Set your electronic crossover at the following points and slopes:

   Low Pass: -3dB at 250 Hz at 18dB per octave (Butterworth
   High Pass: -3dB at 400 Hz at 12dB per octave

   Crossovers with 12 to 18dB slopes in the 250-400 Hz range can also be used with good results, although not ideal.

2. Connect the bass and mid/treble amplifiers directly to the speakers as shown below (do not use the T-IVa outboard crossover box):



3. Since the effective crossover point for the T-IVa is approximately 250 Hz, the power requirements for the bass and treble amps are nearly the same. Part of the reason for bi-amplification is increased dynamic range; therefore, use amplifiers with an 8 ohm rating of at least 100 watts per channel.

10. MAINTENANCE

1. A) In the event the speaker's fabric is soiled, use light, repeated applications of K2R Spray Cleaner.
   B) Allow the cleaner to dry thoroughly after each application.
   C) Brush lightly and blow the residual powder from the fabric. (Your dealer can supply replacement speaker fabrics which can be easily installed if the fabric is damaged or soiled beyond repair.)
2. For the first month or so, the adhesive on the speaker diaphragm may have enough tack to cause the fabric to stick to the diaphragm if the fabric is pressed against the back of the speaker. This will not damage the speaker and the fabric may be gently pulled free.
3. For owners with cats, we recommend cat repellant around the base of the speakers!
4. Do not use a vacuum cleaner!

11. SERVICE

In the unlikely event that you should need service for your T-IVa loudspeakers, we recommend that you contact your dealer. He is experienced in providing service and can assist you if the speakers must be returned to the factory.

If it is determined that your speakers must be returned for repair, ship your speakers freight prepaid. (Ask for Class 100) to:

Magnepan, Incorporated
1645 Ninth Street
White Bear Lake, MN 55110

Include a packing slip or letter describing the nature of the problem. Please include your name, address, and a daytime telephone number.

SHIPPING--Before packaging, very carefully install the steel protector strip over the ribbon: do not let it slap against the magnet.

THE RIBBON ELEMENT WILL BE RUPTURED IF SHIPPED WITHOUT STEEL PROTECTOR STRIP, AND WOULD NOT BE COVERED UNDER THE WARRANTY.

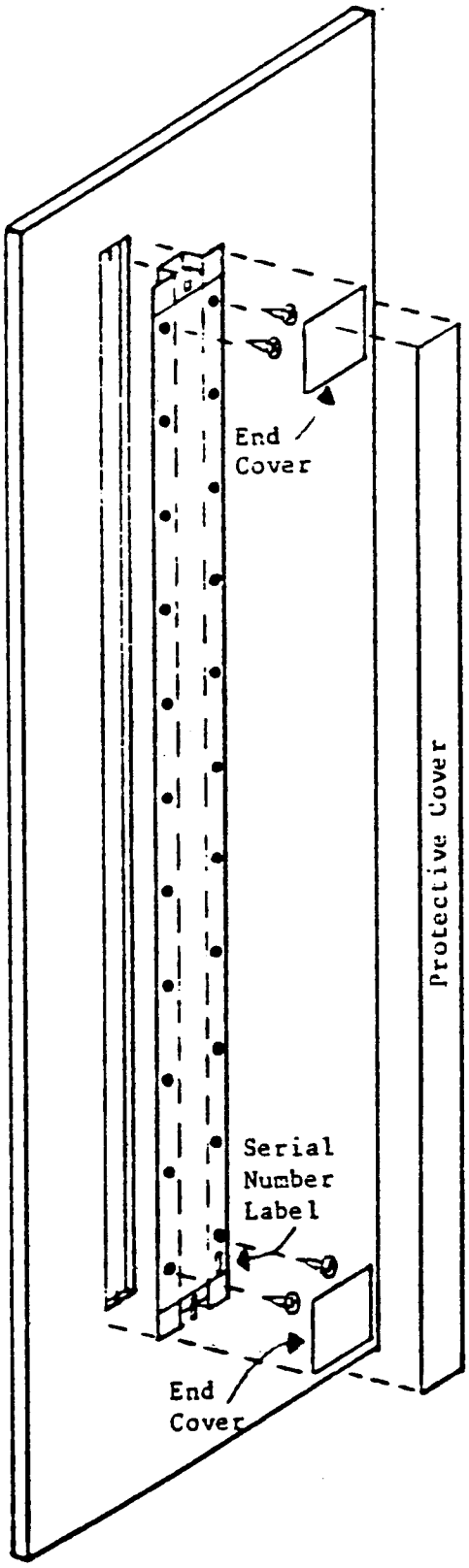
12. THE RIBBON TWEETER

Because the foil element in your T-IVa line source tweeter is only 3 microns thick, it is very fragile. It's the price we pay for ultra high performance. Most users will find the ribbon will last for many years; others may find it needs replacing every two years or so. The determining factor will be thermal fatigue caused by the frequent heating and cooling of the foil element. Users that frequently push the 2½ amp tweeter fuse capacity will be the most likely to experience early failure. Because of this the tweeter has been designed to be easily replaced, requiring only a screwdriver and a soldering iron. The time required should be less than 30 minutes.

If you have a defective tweeter, you should contact your dealer for an immediate replacement. Your defective unit will be returned to Magnepan for installation of a new foil element at a minimal charge to you: there is no charge if it is within the one-year warranty period that covers the foil element and Magnepan determines that there is no evidence of abuse.

DO NOT SHIP A TWEETER BACK TO MAGNEPAN WITHOUT CONTACTING YOUR DEALER OR MAGNEPAN FIRST. Tweeters must be returned in authorized containers only. Tweeters that are damaged in shipment are the responsibility of the customer.

13. RIBBON TWEETER REPLACEMENT



Tools Needed: #2 Phillips Screwdriver
Soldering Iron

A. Place protective cover over backside of ribbon tweeter, as shown (to prevent damage to ribbon while moving the speaker panel).

B. Carefully lay speaker on a flat working surface.

C. Remove the protective cover and pry away the two end covers.

D. Desolder the wire at each end of the ribbon tweeter.

E. Reinstall protective cover over ribbon.

F. Remove the screws that attach the ribbon tweeter to the panel and then remove the tweeters.

G. Install the new ribbon tweeter in the frame. SERIAL NUMBER LABEL MUST BE AT THE BOTTOM.

H. Insert the screws. (Tighten until snug, then back off ½ revolution.)

I. Remove protective cover and solder the wires to the ribbon lugs. (Use rosin core solder.)

J. Peel liner from back of end covers and adhere to each end of tweeter.

K. Install protective cover.

L. Reposition speakers in listening position and remove protective cover.

M. Repack and return the old tweeter in the factory packaging, to your dealer.

CAUTION: Do not bump or touch the ribbon at its end terminals. Also do not tug on the fine wire jumper that is soldered to the foil and attached to the end terminal.

14. T-IVa SPECIFICATIONS

SYSTEM DESCRIPTION: 3-WAY, COMBINATION PLANAR-MAGNETIC AND TRUE RIBBON TWEETER WITH BI-AMPLIFICATION OPTION

BASS SECTION: 1254 SQ. IN. PLANAR MAGNETIC

MIDRANGE SECTION: 168 SQ. IN. PLANAR MAGNETIC

TWEETER SECTION: ¼ IN. WIDE, 55 IN. LONG X .0001 to .00015 INCH THICK TRUE RIBBON LINE SOURCE

*FREQUENCY RESPONSE: ± 3dB FROM **30 Hz TO 40 KHZ

POLAR RESPONSE - RIBBON DRIVER: 180° HORIZONTAL DISPERSION BOTH FRONT AND BACK TO 20 KHZ

MINIMUM RECOMMENDED POWER: 100 WATTS RMS (8 OHMS RATED)

MAXIMUM RECOMMENDED POWER: LIMITED ONLY BY MID/TREBLE FUSES (200-300 WRMS)

SENSITIVITY: 1 WATT RMS, 500 HZ, 87dB @1 METER

IMPEDANCE: PURELY RESISTIVE: BASS--4 OHMS
MIDRANGE & RIBBON TWEETER--3 OHMS

CROSSOVER SYSTEM: LOW-PASS (BASS): -18dB BUTTERWORTH @250 Hz
HIGH-PASS (MIDRANGE/TWEETER): 12dB @400 Hz

CROSSOVER BETWEEN MIDRANGE AND TWEETER IS APPROXIMATELY 3000 Hz AND IS NON-DEFEATABLE.

FINISH: PANELS COVERED WITH OFF-WHITE, BLACK, OR BROWN FABRIC, WITH OAK TRIM

WARRANTY: (LIMITED) NON-TRANSFERRABLE - RIBBON FOIL ELEMENT - 1 YEAR
BALANCE OF SPEAKER - 3 YEARS

SHIPPING WEIGHT: 260 LBS. WITH ACCESSORY PACKAGE

*Because there are no universally accepted methods for loudspeaker measurement, frequency response specifications may be stated by most manufacturers without reference to measurement techniques and/or specific locations in rooms. Magneplanar loudspeaker frequency response curves are minimum average performance levels that may reasonably be expected in normal installations.

**New Magneplanar T-IVa speakers will not display their full bass potential. After a month or two of use the bass response will lower 5 Hz or more. At this point the response will stabilize and the speakers rated performance (or better) can be realized. While this 5 Hz or more of lower bass response is important, the most important factors in obtaining good bass response from the T-IVa speakers are room size and geometry, wall material, and speaker placement.

TWX 910-563-3605

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PRESS RELEASE

MAGNEPLANAR® TYMPANI-IVa

The changes incorporated in the new Tympani-IVa as compared to the Tympani-IV include the following:

**Increased efficiency of bass and midrange drivers

Stronger magnets in the bass and midrange drivers of the T-IVa enable the speakers to exceed 110dB RMS at the listener's seat in a 16' x 25' room with an amplifier rated at 200 watts at 8 ohms.

The balance of the T-IVa is changed from "flat" response to approximately a 1dB per octave "warmer" slope as measured at the listener's seat. (Flat response measured at the listener's seat is judged by the ear/brain to be too "hot" in most rooms.)

**Improved crossover design

The greatest effort involved with the new T-IVa was in the area of driver blending and phasing. The improvements in this area are difficult to quantify; however, the improved crossover design is an important part of the Tympani-IVa advancement.

**Longer midrange line source driver

By lengthening the midrange driver and placing the tweeter closer to the midrange, slightly better coupling and dispersion is realized. The increased bandwidth and dispersion of the midrange is subtle, but combines with the other improvements in the T-IVa to achieve an overall improvement in sound quality, which is easily recognizable with the first auditioning.