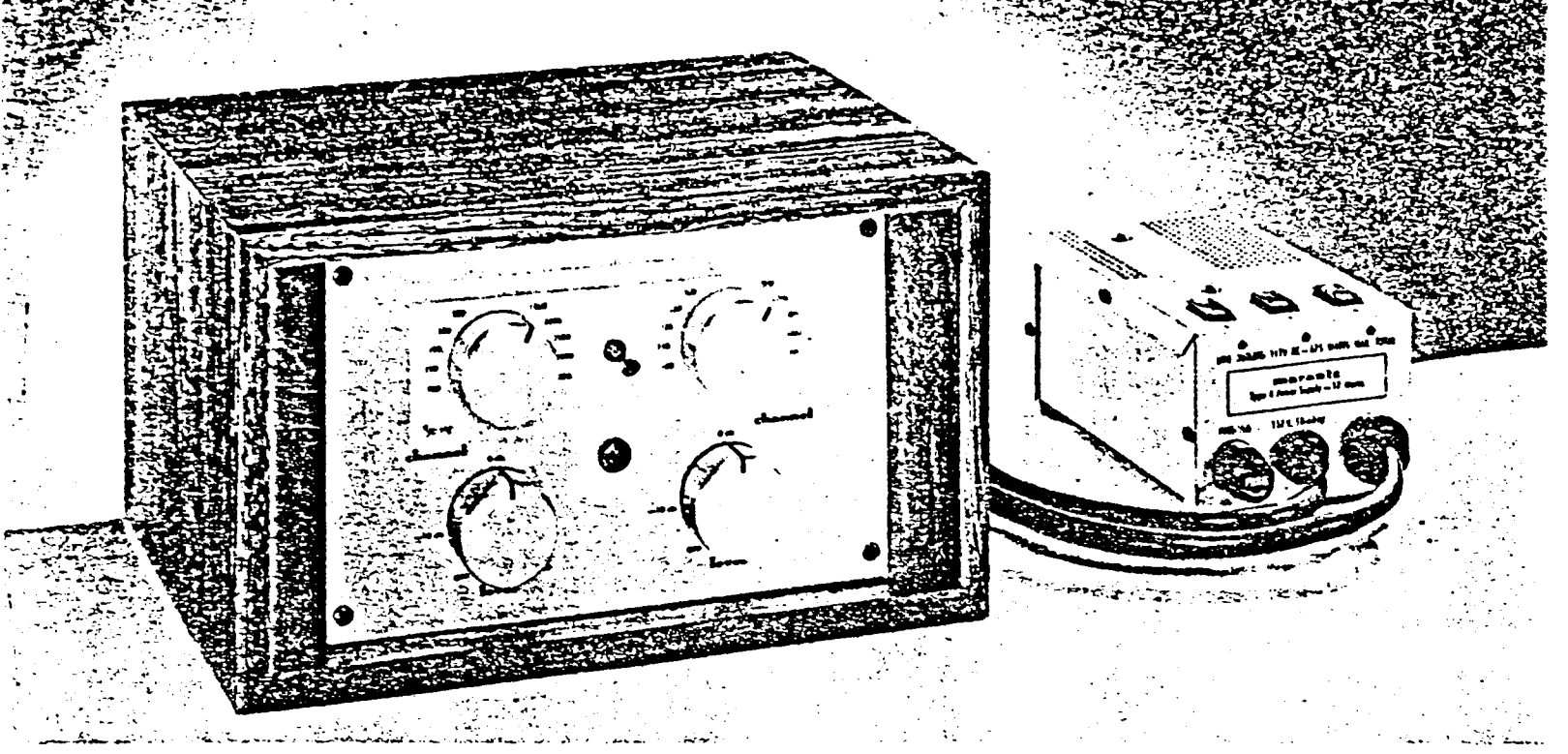

marantz MODEL 3

# Electronic Crossover

A considerable improvement in clarity and smoothness of reproduction is obtained when a loudspeaker is connected directly to the amplifier terminals without intervening reactive networks. The low internal impedance of the amplifier then tends to dampen spurious speaker resonances. In multi-speaker systems it would be necessary to accomplish the crossover at an earlier stage in order to supply separate amplifiers with the frequency range required for each speaker. The Marantz Electronic Crossover was designed for this purpose.

This new unit embodies typical Marantz quality features. Careful engineering and high grade construction make this one of the finest instruments of its type (terminal board wiring, low-noise deposited carbon resistors, precision components, etc.). A basic two-channel unit, it can be cascaded for multi-speaker systems.

- ★ *12 crossover points at ½ octave intervals. Adjustable from 100 cps to 7000 cps. Separate switch and a balance control for each channel.*
- ★ *12 db per octave rolloffs with - 3 db (non-ringing) "knees". 12 db down one octave beyond crossover.*
- ★ *Self-powered by remote supply. All 3 dual triode tubes provided with filtered DC on filaments for elimination of Hum problems.*
- ★ *IM Distortion: 2 volts equivalent RMS . . . less than 0.1% 15 volts equivalent RMS . . . less than 1%.*
- ★ *10 db gain available with balance controls at maximum. Normal (Zero db gain) position indicated.*
- ★ *Cathode follower outputs.*

| | |
|---|---|
| ELECTRONIC CROSSOVER (complete with power supply) . . . . . | $90.00 |
| Cabinet (Mahogany, Walnut or Blonde) . . . . . | 15.00 |
| Dual Cabinet to house two units . . . . . | 19.50 |

*Dual Cabinet can be used with one unit. A matching blank panel can be supplied to cover unused section.*

| | |
|---|---|
| Blank panel . . . . . | 3.00 |

## SPECIFICATIONS

* 12 crossover points at 100, 150, 220, 350, 500, 700, 1000, 1500, 2200, 3500, 5000, and 7000 cps.

* A separate switch and balance control for each channel.

* 12 db per octave rolloffs with -3db (non-ringing) "knees". 12 db down one octave beyond crossover.

* 10 db gain available with balance controls at maximum. Normal (Zero db gain) position indicated.

* Hum and noise better than 90db below 2v.

* IM Distortion: 2 volts equivalent RMS...less than 0.1% 15 volts equivalent RMS...less than 1%

* Cathode follower outputs.

* Self-powered by remote supply. All three dual triode tubes provided with filtered DC on filaments for minimization of HUM problems.

The separate power supply must be plugged into the rear of unit. Its power line must be plugged into a switched A.C. outlet (usually provided in a preamp control unit), since an on-off switch is not incorporated in the crossover.

To use the Marantz Electronic Crossover in a 2-way system, connect the preamplifier output into the "input" jack on the crossover. One cable should connect the jack marked "Lo-Channel" to one amplifier to which the woofer has been connected. Another cable should connect the jack marked "Hi-Channel" to a second amplifier to which the high frequency speaker has been connected.

Before turning the equipment on, a crossover frequency should be selected on the basis of knowledge of the components used. Generally, both Hi-Channel and Lo-Channel filter frequencies should coincide, although an overlap or a gap of one or two positions may in some cases provide a compensating bump or hole in the overall response. WARNING: The Hi-Channel filter frequency should never be turned below the range of the high frequency speaker as stated by the manufacturer, or damage may occur, especially in the case of tweeter horns. (Experiment may show, however, that in many cases a higher crossover may sound better.) The level controls should be set upright to Zero db (where gain through either channel is unity).

# MARANTZ ELECTRONIC CROSSOVER

## Temporary Instruction Literature

The Marantz Electronic Crossover is designed for use with multiple speaker systems where it is intended to drive the separate speakers with separate amplifiers instead of dividing the energy from a single amplifier.

A considerable improvement in clarity and smoothness of reproduction is obtained when a loudspeaker is connected directly to the amplifier terminals without intervening reactive networks. The low internal impedance of the amplifier then tends to dampen spurious speaker resonances. In multi-speaker systems it is necessary to accomplish the crossover at an earlier stage in order to supply separate amplifiers with the frequency range required for each speaker. The Marantz Electronic Crossover was designed for this purpose.

This new unit embodies typical Marantz quality features. Careful engineering and high grade construction make this one of the finest instruments of its type (terminal board wiring, low-noise deposited carbon resistors, precision components, etc.). A basic two-channel unit, it can be cascaded for multi-speaker systems. A cabinet is available which holds two units for cascaded or binaural operation. This matches the Marantz preamplifier cabinet.

### SPECIFICATIONS

* 12 crossover points at 100, 150, 220, 350, 500, 700, 1000, 1500, 2200, 3500, 5000, and 7000 cps.

* A separate switch and balance control for each channel.

* 12 db per octave rolloffs with -3db (non-ringing) "knees". 12 db down one octave beyond crossover.

* 10 db gain available with balance controls at maximum. Normal (Zero db gain) position indicated.

* Hum and noise better than 90db below 2v.

* IM Distortion: 2 volts equivalent RMS...less than 0.1% 15 volts equivalent RMS...less than 1%

* Cathode follower outputs.

* Self-powered by remote supply. All three dual triode tubes provided with filtered DC on filaments for minimization of HUM problems.

The separate power supply must be plugged into the rear of unit. Its power line must be plugged into a switched A.C. outlet (usually provided in a preamp control unit), since an on-off switch is not incorporated in the crossover.

To use the Marantz Electronic Crossover in a 2-way system, connect the preamplifier output into the "input" jack on the crossover. One cable should connect the jack marked "Lo-Channel" to one amplifier to which the woofer has been connected. Another cable should connect the jack marked "Hi-Channel" to a second amplifier to which the high frequency speaker has been connected.

Equipment should then be turned on and level controls turned - one up, one down or as necessary to achieve the best listening balance while listening to reliable types of source material. Some experimenting may be done to find a better arrangement of crossover frequencies, making sure not to turn Hi-Channel below its limit as stated above. Before the operation is decided upon, a check should be made for the best phasing between tweeter and woofer by reversing the speaker leads on one of the units and listening to determine the smoothest sounding connection. A listening test using random transient noise, such as the interstation noise from an F.M. receiver or electron noise from a high gain preamplifier, will help in deciding the smoothest sounding phasing (this, in addition to listening with musical source material).

As it may be wise to leave the crossover frequencies set semi-permanently, and in order to keep others from inadvertently changing them, the crossover units are supplied with a plastic cover for the two top knobs, which is held in place by a single center screw.

In order to use a 3-way, 3-amplifier system, 2 electronic crossovers are required (each crossover requires its separate power supply). These crossovers can be mounted side by side in a Marantz cabinet especially adapted for the purpose. The pre-amp cable should be connected to the input of the right hand unit. The Hi-Channel output of this unit should go to the tweeter amplifier. The Lo-Channel output should be connected by a short cable to the input of the left hand unit. The Lo-Channel of the left hand unit connects to the woofer amplifier, and the Hi-Channel of this unit to the mid-range amplifier. The frequency knobs on the left hand unit determine the crossover between the woofer and the mid-range. The frequency knobs on the right hand unit determine the crossover between the mid-range and tweeter.

In this use, the level control toward the middle on the right hand unit would control both the woofer and the mid-range and duplicate the function of the other controls for this purpose. Therefore, it should be indexed to Zero db (unity gain) and not used. In other words, the furthest left control is woofer, the next is the mid-range, the next remains indexed at Zero db, and the furthest right is the tweeter control.

Before switching equipment on, trial crossover frequencies should be set up and the levels set to unity gain of Zero db as described in the use with 2-way systems. Trial adjustment should be made in the same manner bearing in mind the same type of considerations and warning as previously described for the 2-way unit.

Phasing is done in the same manner as for the 2-way except that it must be done progressively. For instance: Turn tweeter level off then listen for best phasing between mid-range and woofer reversing mid-range speaker wires if necessary. Then turn tweeter up for balance, listening for best phasing while reversing tweeter leads to its amplifier for smoothest sound (as previously described, the use of a noise source will help in listening).

It is also possible to use the Marantz Electronic Crossover in mixed systems with, for instance, an electronic crossover between a woofer with its amplifier and another amplifier driving a conventional electrical crossover into a mid-range and tweeter.

WARNING: All cable connections should be made with amplifiers switched OFF [illegible] due to making and breaking contacts could

the Hi-Channel of this unit to the mid-range amplifier. The frequency knobs on the left hand unit determine the crossover between the woofer and the mid-range. The frequency knobs on the right hand unit determine the crossover between the mid-range and tweeter.

In this use, the level control toward the middle on the right hand unit would control both the woofer and the mid-range and duplicate the function of the other controls for this purpose. Therefore, it should be indexed to Zero db (unity gain) and not used. In other words, the furthest left control is woofer, the next is the mid-range, the next remains indexed at Zero db, and the furthest right is the tweeter control.

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It is also possible to use the Marantz Electronic Crossover in mixed systems with, for instance, an electronic crossover between a woofer with its amplifier and another amplifier driving a conventional electrical crossover into a mid-range and tweeter.

WARNING: All cable connections should be made with amplifiers switched OFF because overloading pulses of energy due to making and breaking contacts could burn out speakers, especially tweeter types.

These instructions are temporary, pending the compilation of more thorough material and diagrams. Complete instructions and diagram will be sent at a later date to everyone who sends in a guarantee card for his crossover.

The Marantz Company, in accordance with its customer relations, invites any and all specific inquiries to further clarify the use of this equipment.

MARANTZ COMPANY
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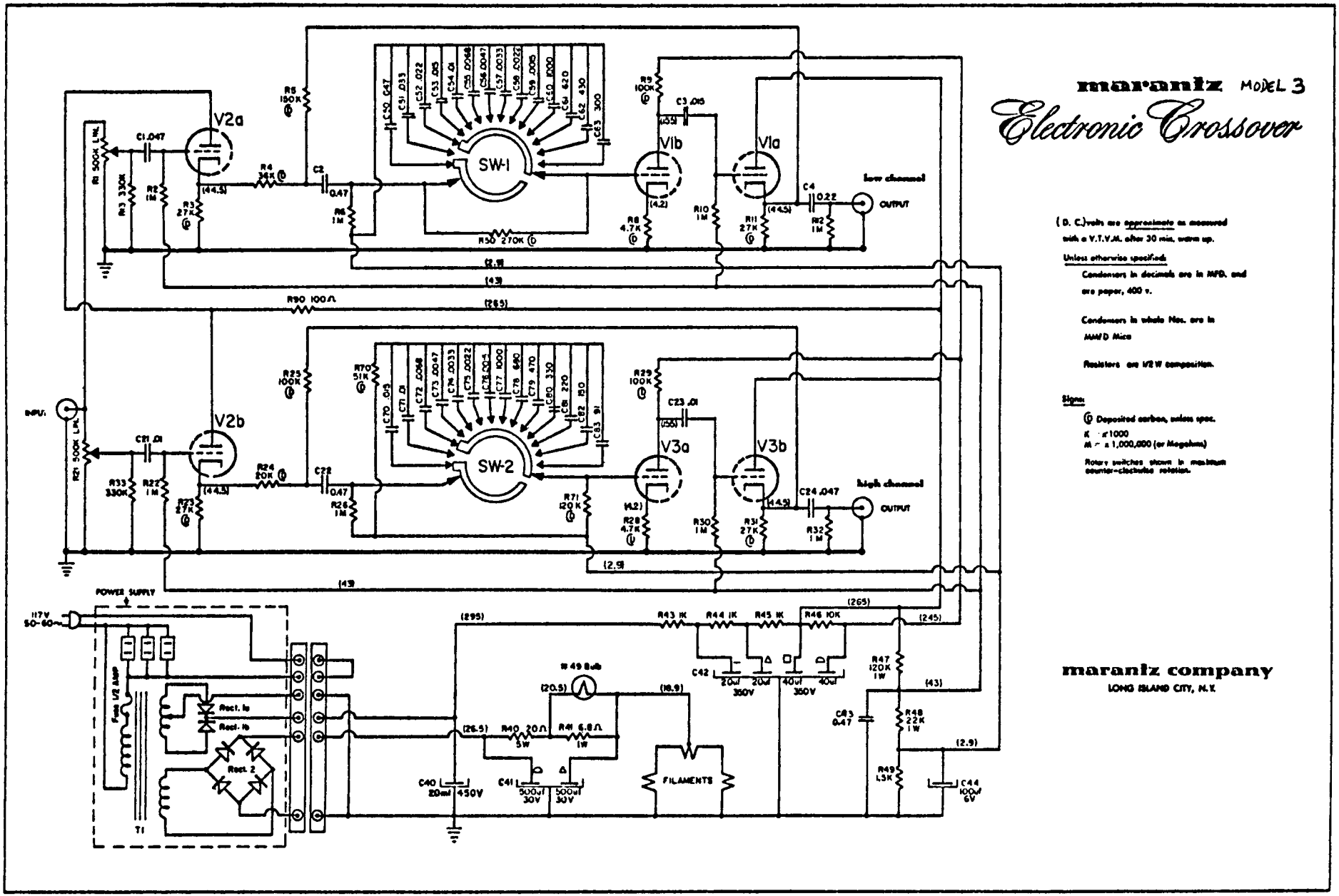
Long Island City 6, N. Y.


maranitz MODEL 3
Electronic Crossover
V2a
V2b
V1a
V1b
V3a
V3b
SW-1
SW-2
INPUT
OUTPUT
low channel
high channel
POWER SUPPLY
117V 50-60~
FILAMENTS
(D. C.) volts are approximate as measured with a V.T.V.M. after 30 min. warm up.
Unless otherwise specified:
Condensers in decimals are in MFD. and are paper, 400 v.
Condensers in whole Nos. are in MMFD Mica
Resistors are 1/2 W composition.
Signs:
Deposited carbon, unless spec.
K = x1000
M = x 1,000,000 (or Megohms)
Rotary switches shown in maximum counter-clockwise rotation.
maranitz company
LONG ISLAND CITY, N.Y.