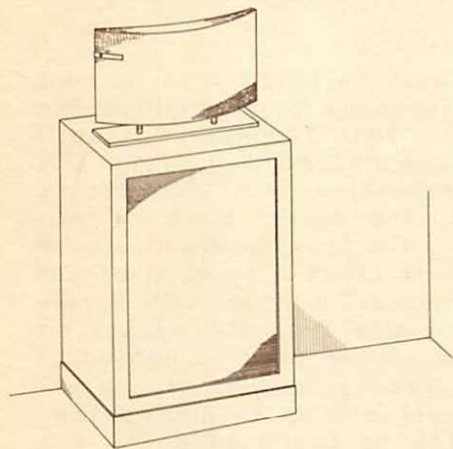
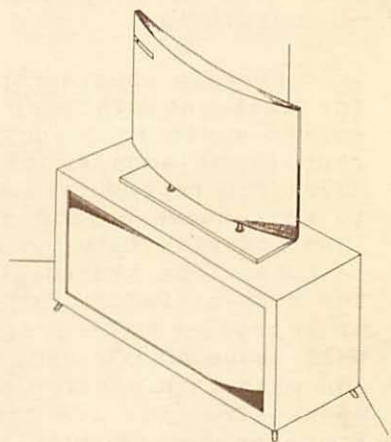


Pickering Isophase Speakers Models 580 and 581



Model 580



Model 581

Balanced Push-Pull Electrostatic Loudspeakers



PICKERING and company incorporated
Oceanside, L. I., New York

"For those who can hear the difference"

The advent of the Pickering Isophase Speakers introduces an entirely new concept of sound propagation. A single, large but virtually massless diaphragm converts electrical energy into mechanical energy producing sound. The sound is reproduced at an equal level over the entire surface of the curved diaphragm. The frequency response is smooth and clean throughout its operating range. As a result of this design, a new type of musical reproduction is achieved. The Isophase is designed to reproduce the middle and high frequencies with a level frequency response to beyond the limits of audibility.

Certain considerations must be taken into account for most satisfactory performance. To reproduce the entire audio frequency range, both Isophase Speakers require an additional speaker called a woofer. The Model 580 reproduces the frequencies from 1000 cycles to well above 20,000 cycles. The woofer used in conjunction with this speaker should provide clean, smooth response from its low frequency limit up to 1000 cycles for most satisfactory performance. The Model 581 Speaker reproduces the frequency range from 400 cycles to well above 20,000 cycles. The woofer used in conjunction with this speaker should provide clean, smooth response from its low frequency limit up to 400 cycles. Each speaker is supplied with an Isophase Model 401 divider which incorporates a DC power supply and a crossover network to supply the low frequencies to the woofer and the high frequencies to the Isophase Speaker as well as the DC required by the Isophase.

LOCATION

To minimize separation effects the Isophase Speaker and the woofer should be located in close proximity to each other. The most pleasing performance will be achieved when the Isophase Speakers are placed across a room corner with a minimum of six inches of space between the side edges of the Isophase and the room walls, or at least two feet out from a bare wall. This type of placement provides sound support from the back wave originating from the speaker, as an orchestra uses a shell to support and amplify the sound in an amphitheater. If the wall is draped or sound absorbent material is placed behind these units, the back wave will be absorbed and a part of the speaker performance will be lost. If these speakers are too close to a wall, the reflecting back wave will cause cancellation and destroy the linearity of sound propagation. Since

high frequencies are quite directional, it is wise to consider that the high frequency sound waves travel in straight lines as light rays do. Sound therefore will be generated uniformly on the radius of curvature of the diaphragm through an arc of 50 degrees and it is desirable that these speakers be located in such a manner that the listening area will be covered as completely as possible by the sound radiation pattern from the speaker, in both the lateral and vertical planes. Insofar as practical, the height of the Iso-phase Speakers should be maintained at ear level.

INSTALLATION

WARNING - All connections to and from the divider should be made before inserting the AC plug into the 115 volt, 60 cycle line.

1. Once the location of the Isophase Speakers with the associated woofer has been established in accordance with the requirements outlined above, leads are required from the 16 ohm output tap of the amplifier to the input of the Model 401 divider. It is important to observe polarity (the ground side of the amplifier output should connect to the ground side of the divider input) on the line between the amplifier and the divider since many present day amplifiers use feedback from the output transformer secondary. This precaution will insure stability of operation. If the amplifier has a damping control, it should be turned to the full damping position, this provides maximum feed-back within the amplifier cir-



cuit. Two crossover plugs are provided with each 401 divider. The plug with the three jumper wires should be used in conjunction with the Model 580 Isophase. This provides a 1000 cycle crossover. The crossover plug with the two jumper wires provides a 400 cycle crossover and should be used in conjunction with the Model 581 Isophase.

2. The two lead wires from the divider with the spade lugs soldered on the ends, should be secured to the woofer terminals. A terminal board is supplied which may be required when bare leads extend from the woofer.
3. The three pin female connector from the divider should be connected to the male three-pronged plug on the Isophase Speaker leads.
4. Insert the IV2 Tube securely in its socket.
5. Plug the AC line plug into a 115 volt AC 60 cycle line.
6. Turn volume controls on the amplifier and preamplifier well down; turn both units on; select a record with which you are familiar and raise volume controls gradually until a pleasing level has been achieved.
7. The Model 401 divider is provided with an attenuator or balancing control. With your equalizer positions and tone controls set in accordance with the recording characteristic and room requirements, determine whether you are achieving satisfactory balance with your speaker combination. If it is apparent that the high frequency speaker is overdriving (louder) than the low frequency speaker, the attenuator switch should be in the "high" position and the attenuator control rotated clockwise until the most pleasing balance is achieved. If the woofer is overdriving the Isophase Speaker, the attenuator switch should be in "low" position and the attenuator control rotated clockwise until satisfactory balance is achieved.

A short note may be appropriate here concerning the function of the various controls. The function of the preamplifier equalizer control is to provide proper compensation for the recording characteristic used by the record manufacturer. The tone controls provide

flavoring in accordance with individual room and ear requirements. The attenuator control or balance control on the Model 401 Isophase divider is provided to insure that low frequencies reproduced by the woofer and the high frequencies reproduced by the Isophase are at the same sound levels.

POWER

The Model 580 is capable of handling a power output from your amplifier of 15 watts before possible damage to the diaphragm will occur. The Model 581 is capable of handling a power output from the amplifier of 50 watts before possible damage to the diaphragm will occur. Both Isophase Speakers represent a high capacitance and impedance load across the output of your amplifier. Therefore, a good quality stable power amplifier with adequate undistorted power should be used. Both speakers are capable of delivering a sound level that is more than adequate for a large listening room. Individually they will not suffice for the levels required for public address systems. Their best efficiency is realized at normal room listening levels and since they provide an extremely large sound producing area as compared with the average dynamic type speaker, they will produce extremely fine sound at relatively low listening levels.

MATCHING

Certain types of horn loaded speaker systems are much more efficient than most direct radiator woofer units, therefore when the Isophase is used with some horn loaded woofers, more attenuation of the low frequency driver will be required by the divider balancing control.

In some instances, the Isophase and woofer combination will be used in conjunction with an auxiliary speaker system. In such cases, care must be taken to operate both speaker systems in phase (when operating in parallel, polarity of the line from the amplifier to the speaker systems must be observed). If one speaker system is overdriving the other (louder) a "T" pad should be used to equalize levels. This procedure should be followed when AB tests of this speaker system are to be made. In this way, comparison is being made in the quality of reproduction rather than the level of sound being generated.

AUDIOPHILE NET PRICES

Model 580 Isophase Speaker with Model 401	
Divider Crossover frequency 1,000 cycles	\$ 150.00
Model 581 Isophase Speaker with Model 401	
Divider Crossover frequency 400 cycles	210.00

