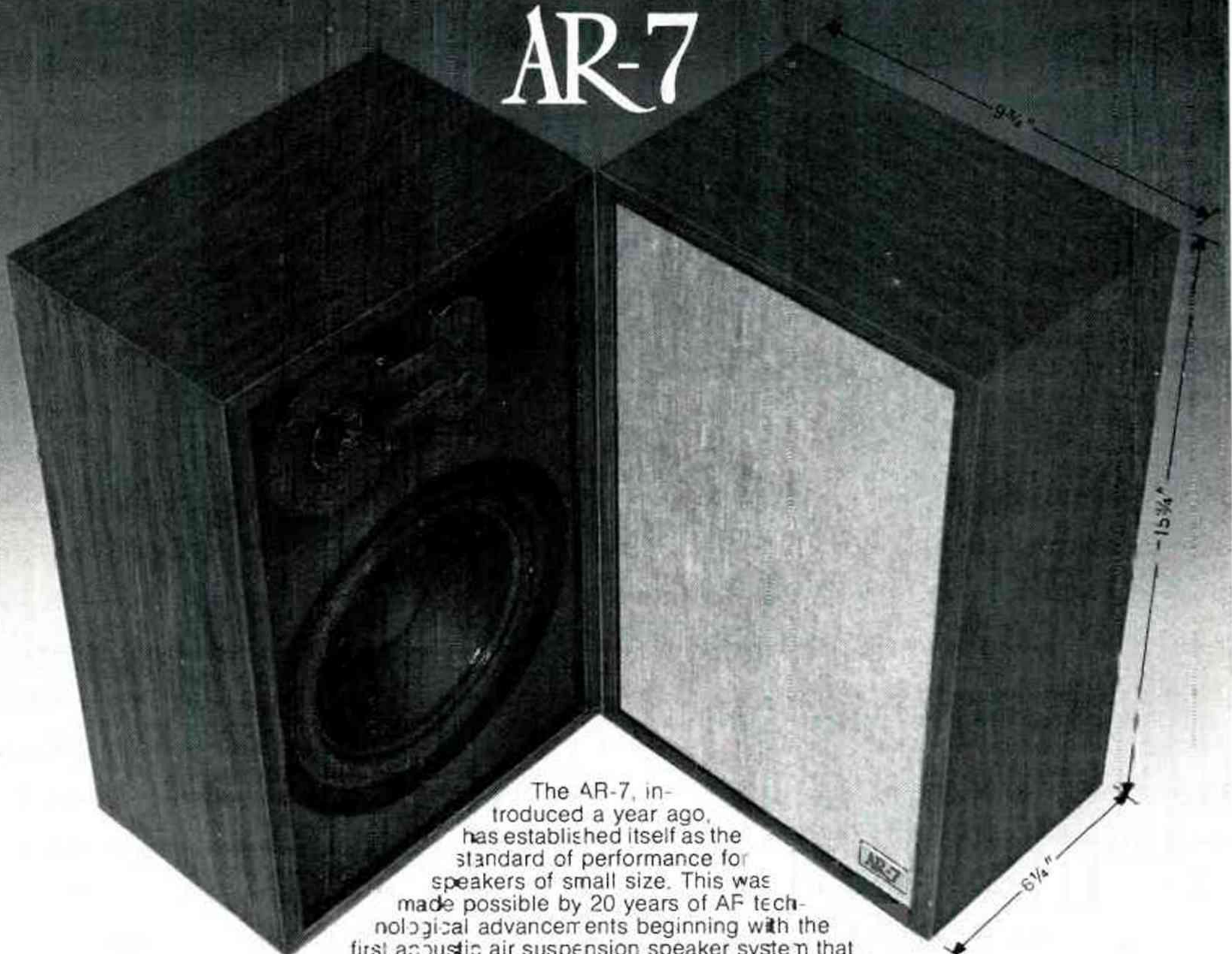


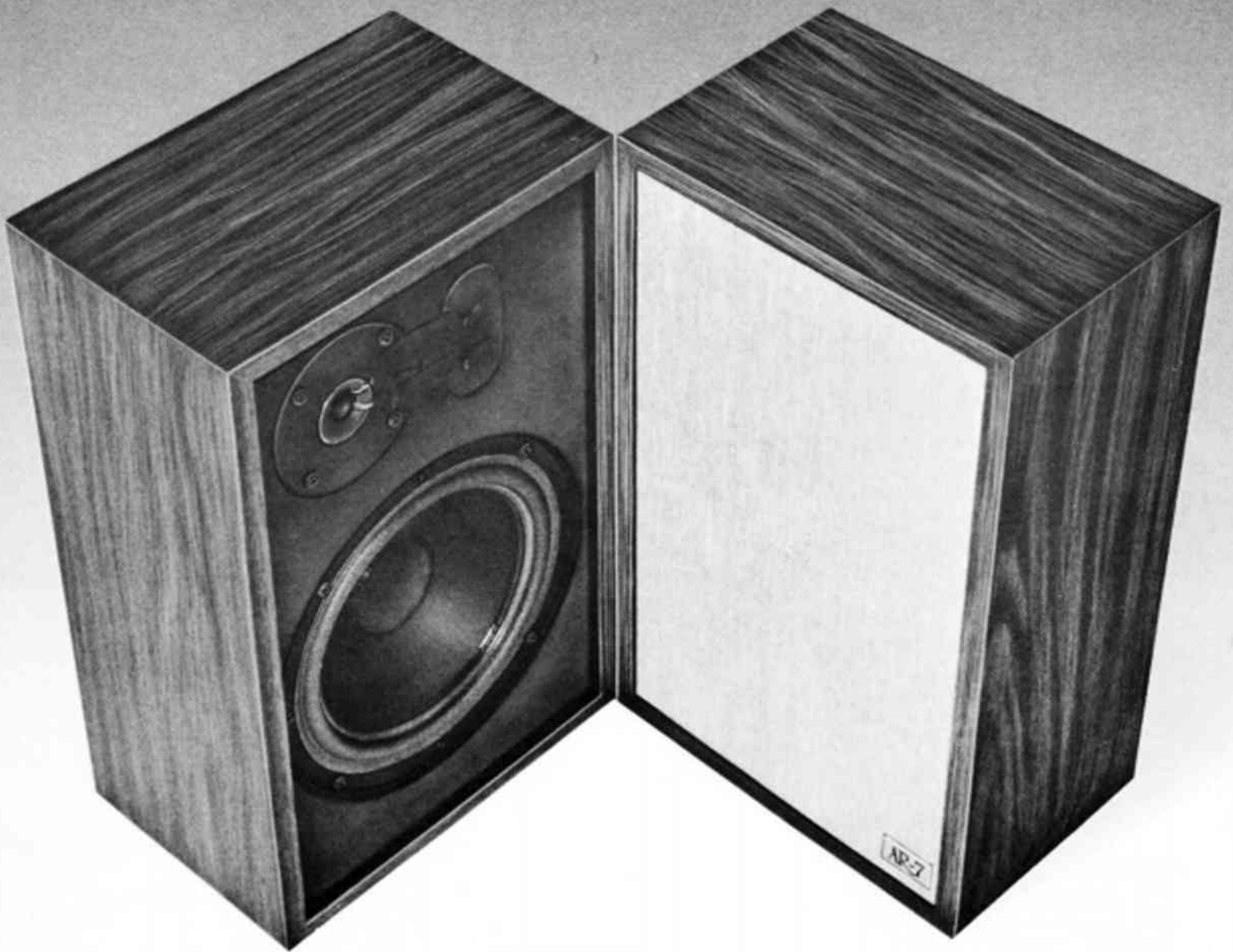
Accurate sound was just not possible  
in a speaker this small...

until the  
**AR-7**



The AR-7, introduced a year ago, has established itself as the standard of performance for speakers of small size. This was made possible by 20 years of AF technological advancements beginning with the first acoustic air suspension speaker system that makes true high fidelity bookshelf-size speakers a reality.

# AR-7



A TELEPHONE COMPANY

# AR-7

## Speaker System

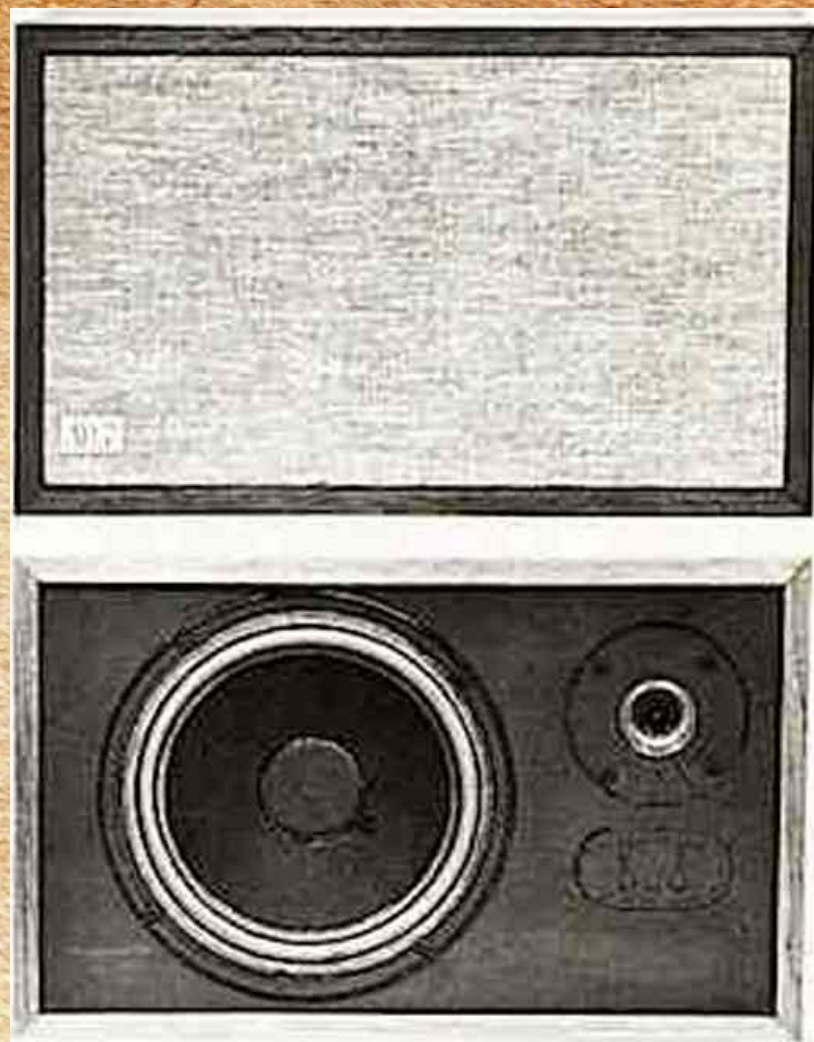
The AR-7 is a new speaker system developed by Acoustic Research. It offers the same low distortion, extended and smooth frequency response, and wide dispersion associated with all AR loudspeakers. However, it accomplishes this in a cabinet more compact and at a price lower than other AR speakers.

To accomplish this difficult design target, AR engineers developed a new woofer whose magnetic circuit, voice coil, and precisely controlled moving system mass yield optimal utilization of the acoustic suspension principle for a cabinet of this size. The resulting frequency response extends as low as that of systems of greater size and cost.

The high frequency unit is almost identical to the tweeter used in the highly acclaimed AR-6. The only difference is in the crossover frequency. A selector switch permits the user to choose between two tweeter output levels.

As with other AR loudspeakers, both drivers use high temperature voice coils for additional power handling capability.

Due to its compact size, the AR-7 is ideally suited for 4-channel installation. However, its accurate response and modest cost make it a worthy choice for anyone interested in a high quality reasonably priced stereo system.



### SPECIFICATIONS

Size: 9" x 15" x 6" deep

Weight: 11 lbs.

Recommended Amplifier Power: 15 watts (min.)

Impedance: 8 ohms

Speaker Complement: 8" acoustic suspension woofer

1 1/2" wide dispersion tweeter

Crossover Frequency: 2000 Hz

Controls: High frequency level adjustment (Two position switch)

The AR-7's come packed two to a box. Wood cabinet walnut finish.

All Acoustic Research speaker systems are guaranteed for 5 years.

Price: \$60.00 each.

(Frequency Response Curves Overleaf)

# AR.

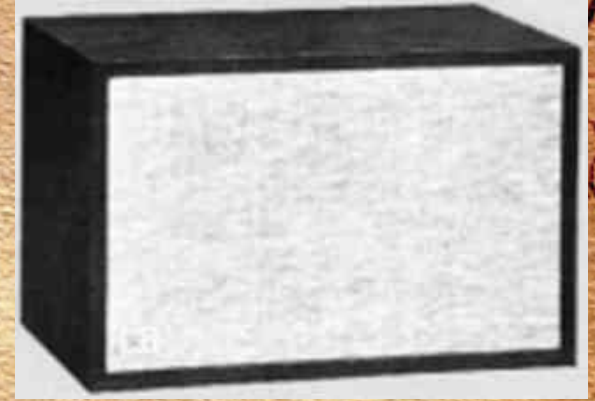
Acoustic Research Inc. 24 Thorndike Street, Cambridge, Massachusetts 02141

## FREQUENCY RESPONSE CURVES

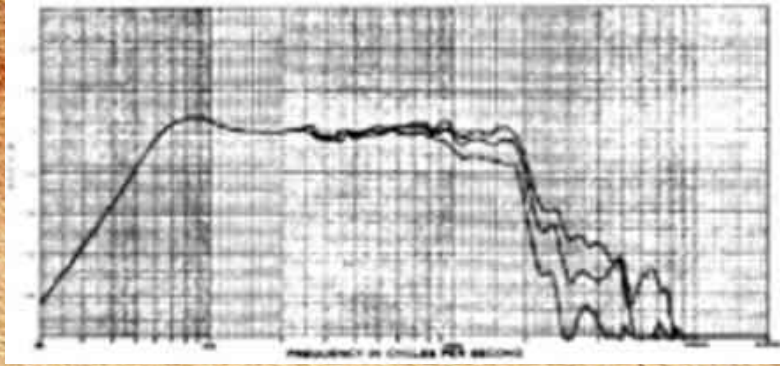
Response curves of each radiator are shown separately so that Interference patterns—which depend on the position of the recording microphone rather than speaker quality—are eliminated. They were measured radiating into a 360 solid angle (a hemisphere!), with grill cloth and decorative molding removed. A D & K 4133 microphone was used.

The microphone was on axis for the highest curve; the second curve was measured 30' off axis, and the lowest 60" off axis.

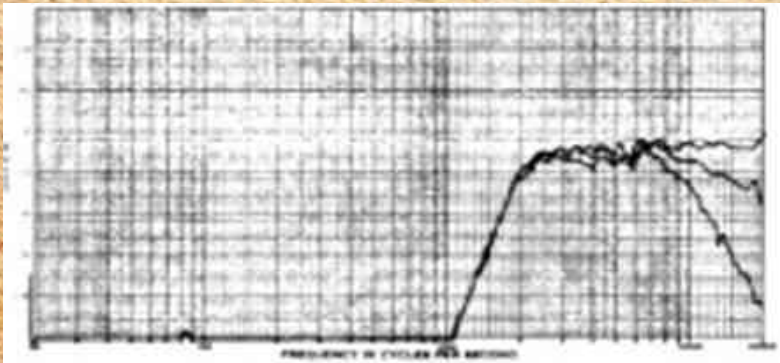
# AR-7



### WOOFER



### TWEETER

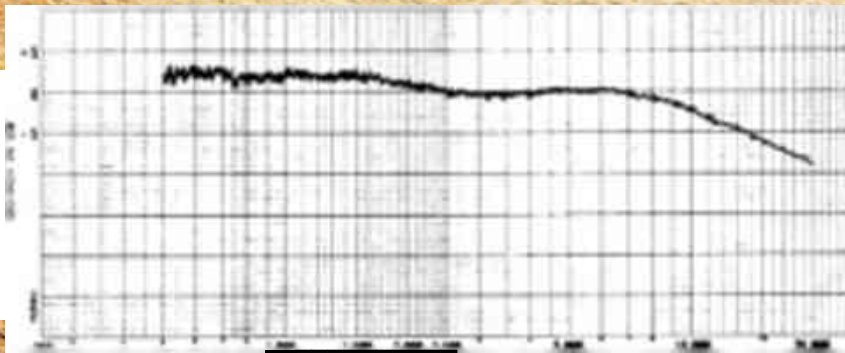


### ACOUSTIC POWER OUTPUT

The curve represents the integrated power output above 500 Hz. measured in a special reverberant chamber.

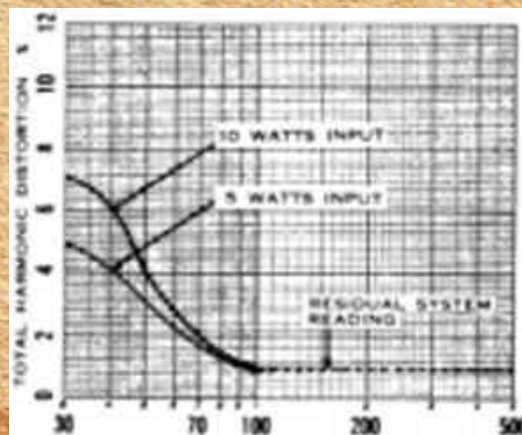
Reflection from the walls

of the chamber mixes together all of the sound emitted by the speaker system in all directions, an effect much more like that of a listening room than the anechoic chamber used for the frequency response curves above. A speaker system which measured well in both types of chambers would be accurate under almost all listening conditions.



### WOOFER HARMONIC DISTORTION

In interpreting this curve, keep in mind that normal listening is done at an average power level of under 1 watt. At this level the harmonic distortion is so low as to be difficult to measure



### GUARANTEE

The workmanship and performance of AR speakers are guaranteed for 5 years in normal use. The guarantee covers parts, repair labor, and freight costs to and from the factory or nearest authorized service station. New packaging is also free if needed.

The AR-7 is a new speaker developed by Acoustic Research to achieve accuracy of reproduction comparable to that of other AR speaker systems, but at a substantial saving in cost. A measure of the success of the new design is the small difference in sound that is apparent when the AR-7 is compared directly to even the most expensive AR speaker systems.

The secret of the AR-7's value for money is a new design of woofer/enclosure system which offers a standard of low-distortion, extended-bass response exceeding that of many systems of greater cost and size.

The AR-7 contains the same type of tweeter as the AR-6, providing a smooth and well-dispersed energy output. The performance of the AR-7, in fact, is nearly identical to that of the AR-6, except for its less-extended bass response.

Due to its compact size, the AR-7 is ideally suited for 4-channel installations. However, its accurate response and modest cost make it a worthy choice for anyone interested in a high quality reasonably priced stereo system.

We would judge me effective tower hmii ol me AR-7 to be about 40 to 45 Hz—which is a very respectable figure for a speaker system of its size ... The tone-burst response was on a par with that of the other AR speakers we have tested—about as close to ideal as can be measured in a "live" environment. it compares with many speakers selling for twice its price or even more—which clearly makes it one of the more outstanding under-\$100 speaker systems, irrespective of size ' STEREO REVIEW.

We predict that the AR-7 will become the standard for other speakers in the under-\$100 class and supplanting some speakers of even greater cost: AUDIO.

### SPECIFICATIONS:

Size: 9" x 15" x 6 1/4" deep; 247 x 400 x 146mm deep.

Weight: 11 pounds; 5.0 Kg.

Minimum Recommended Amplifier Power:

15 watts RMS (continuous) per channel.

Speaker Complement

Woofer: 8" (203mm) acoustic suspension.

Tweeter: 1" (25.4mm) wide dispersion cone.

Average Resonance of Woofer: Free air 25 Hz:

in enclosure 68 Hz.

Crossover Frequency: 2000 Hz.

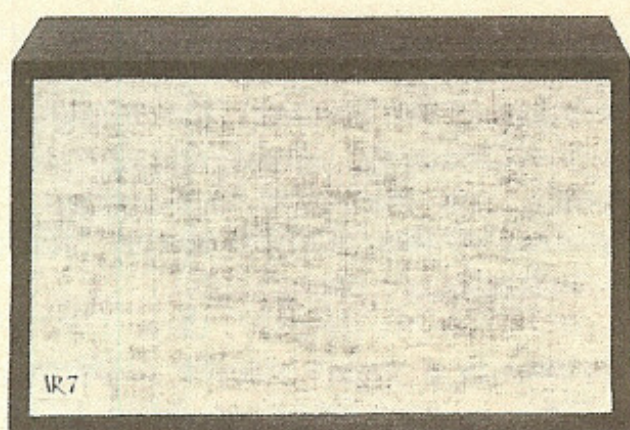
Volume of Enclosure: .345 cu. ft.; 9.77 liters

impedance: 8 Ohms

Controls: High frequency level adjustment (two position switch).



## Acoustic Research AR-7 Speaker



● Most “bookshelf” speakers are comparable in size and weight to a set of encyclopedias, and they must therefore be supported by correspondingly rugged shelves. In contrast, the new Acoustic Research AR-7 would be quite at home on a shelf of paperbacks. It measures 15<sup>3</sup>/<sub>4</sub> inches wide x 9<sup>3</sup>/<sub>4</sub> inches high x 6<sup>1</sup>/<sub>4</sub> inches deep, and weighs a mere 11 pounds. The walnut enclosure can also be hung directly on a wall, using picture hooks and the hardware furnished with the speakers.

The AR-7 is a two-way system, consisting of a wide-dispersion, 1<sup>1</sup>/<sub>2</sub>-inch tweeter (essentially the same as that used in the AR-6) and a newly designed 8-inch acoustic-suspension woofer. The crossover frequency is 2,000 Hz, and a two-position switch in the rear of the unit provides a choice of two tweeter levels, identified as FLAT and NORM. The system impedance is 8 ohms, and the moderately low efficiency requires an amplifier capable of at least 15 watts continuous output. The AR-7 comes packed two to a box, and carrying the standard AR five-year guarantee. Price: \$60 each.

● *Laboratory Measurements.* The AR-7's frequency response was measured in a “normal” reverberant environment that integrated the total energy output of the system. With the tweeter-level control set to FLAT, the measured curve was among the flattest we have charted—within ±2 dB from 65 to 15,000 Hz. In the NORM position, the response went out as far as the flat curve, but

had about 2-dB less energy in the area above 3,000 Hz.

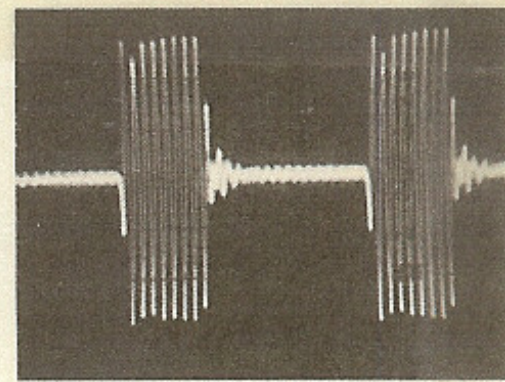
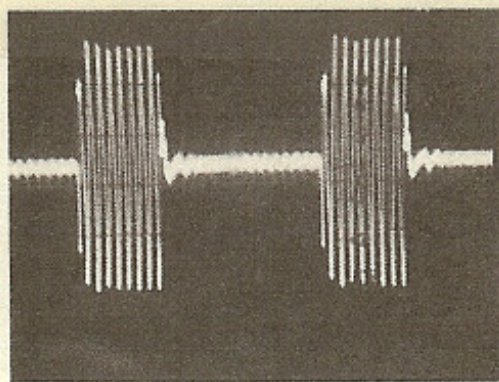
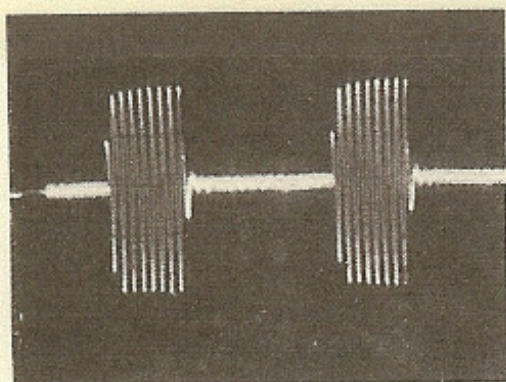
The output fell below 60 Hz, but the low-frequency harmonic distortion was quite low, reaching 5 per cent at about 50 Hz, using either a 10-watt drive level, or maintaining a constant 90-dB SPL (sound-pressure level) at a distance of three feet from the speaker. At lower frequencies (as could be inferred from the rapid decrease in output), the constant-output condition produced more distortion than the constant-drive test. We would judge the effective lower limit of the AR-7 to be about 40 to 45 Hz—which is a very respectable figure for a speaker system of its size.

The impedance ranged between 5 and 10 ohms at most frequencies, reaching its maximum of just over 10 ohms at the bass resonance of 70 Hz. The tone-burst response was on a par with that of the other AR speakers we have tested—about as close to ideal as can be measured in a “live” environment. The efficiency, though low, was slightly higher than that of the top-of-the-line AR speakers such as the AR-3a or AR-LST. A drive level of 3.5 volts at mid-frequencies (about 1.5 watts) was needed to produce a 90-dB SPL.

● *Comment.* The measured characteristics of the AR-7 were so outstanding that we were not surprised at its excellent performance using our simulated “live-vs.-recorded” test technique. The only audible difference between our original program and its reproduction through the AR-7 set to FLAT was a very slight dulling of the extreme highs above 10,000 Hz. Even though the AR-7 tweeter has very fine dispersion by contemporary standards, it was not quite the equal of the dome radiators used in the more expensive AR speakers. Our overall rating of the AR-7 in this test would be a “B+”. In this respect, it compares with many speakers selling for twice its price or even more—which clearly makes it one of the more outstanding under-\$100 speaker systems, irrespective of size.

AR has designed this speaker, we surmise, to satisfy  
(Continued on page 34)

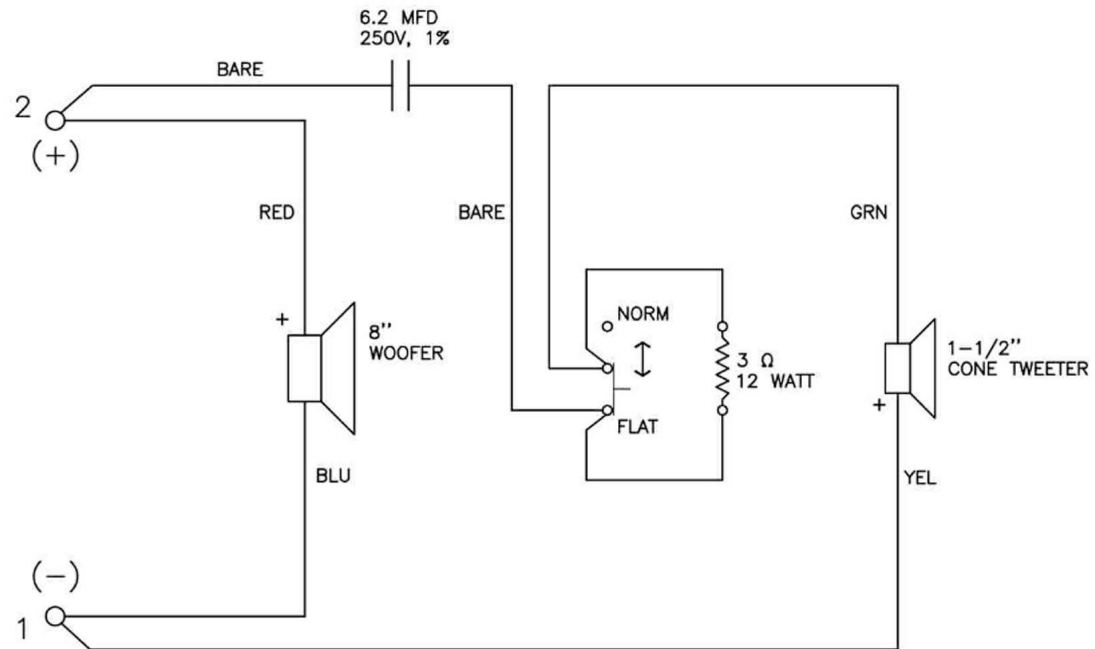
*The AR-7's tone-burst response, shown here for (left to right) 70, 3,000, and 8,000 Hz, was excellent overall.*



the special needs of the quadraphonic listener. It should be possible to install four AR-7's inconspicuously (and inexpensively) in almost any room, and the resulting sound quality should leave little to be desired. The efficiency and other characteristics of the AR-7 are quite compatible with the larger AR systems, thus making it suitable for use in the rear channels when a pair of AR-2ax or AR-3a speakers are used in the front. This compatibility was dramatically demonstrated when we switched

(in stereo) between a pair of \$60 AR-7's and a pair of excellent \$600 AR-LST's (see the LST test report in the October 1972 issue). The audible similarities between the two were much more apparent than were their differences—differences that occurred, naturally, at the very high and very low ends of the audio spectrum. There are not many speakers of any size or price that can acquit themselves so well side-by-side with the AR-LST.

*For more information, circle 105 on reader service card*



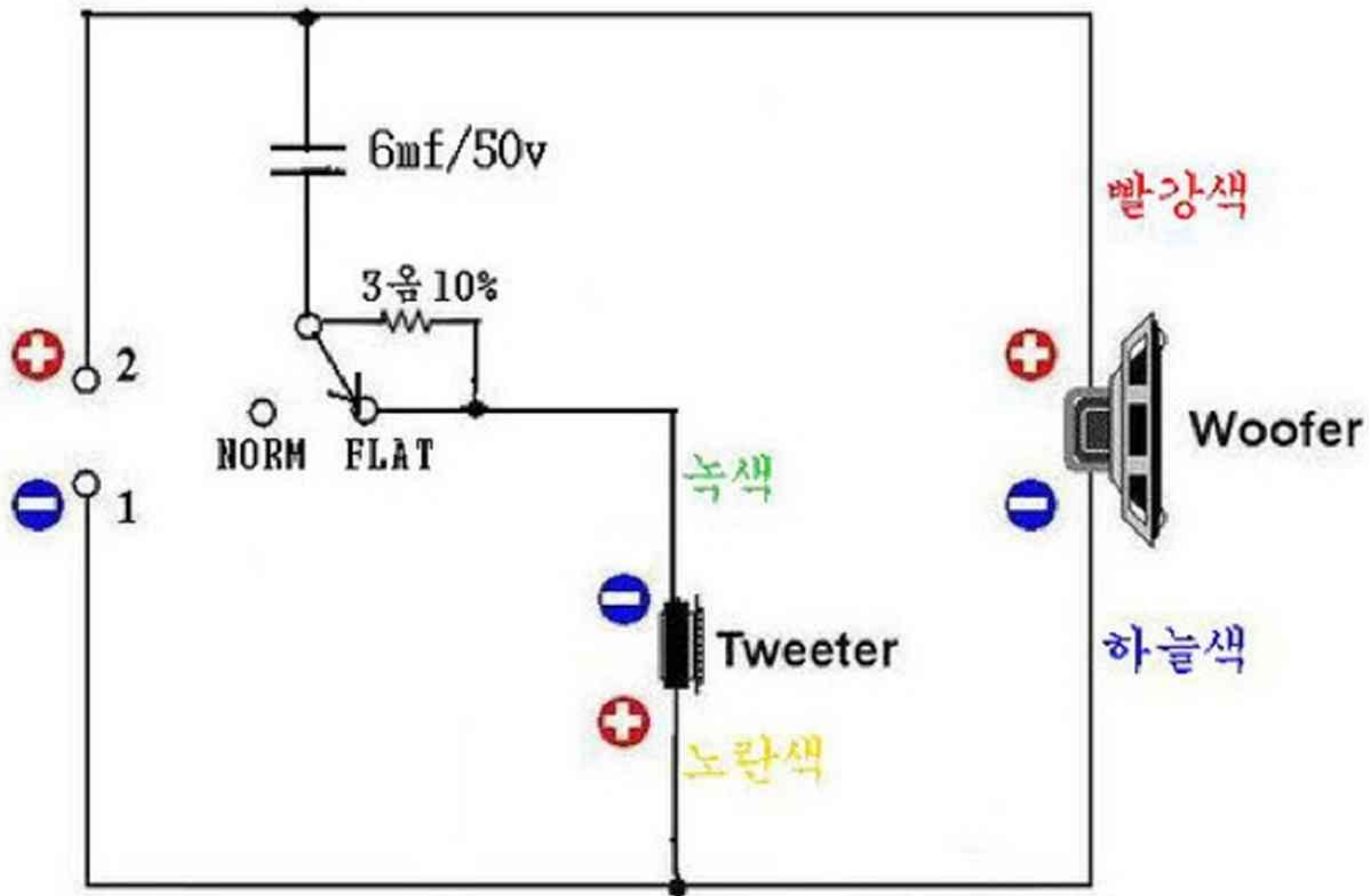
NOTES:

1. NOTE THAT TWEETER & WOOFER ARE "OUT-OF-PHASE"
2. FIBERGLASS FILL = 70Z.
3. ORIGINAL CAP WAS 6 MFD, 50VDC.
- 4.
- 5.

## AR—7 Connection Diagram

SERIAL NUMBERS: 025443 & 027484 (FRONT WIRED TWEETER)

SERIAL NUMBERS: 047274 & 047275 (BACK WIRED TWEETER)



AR7

# AR-7

## ACOUSTIC SUSPENSION LOUDSPEAKER SYSTEM

Serial No. EP

*No attempt should be made to open cabinet or remove speakers, as the acoustic seal would be disturbed.*

### INSTRUCTIONS FOR USE

1. Connect 0 and 8-ohm output terminals of amplifier to speaker input terminals 1 and 2.
2. Adjust tweeter level controls for best musical balance between treble and bass. (This will vary according to the room in which the speaker is used.)
3. One excellent location for a single speaker in a monaural system is in or near a corner, at least 1 metre above the floor. A second stereo speaker may be placed 2 or 3 metres away along one wall, at the same height. The AR-7 may be used with the cabinet either horizontal or vertical. For best results, mount cabinet close to the wall.

**Make certain that all knurled nuts are securely tightened.**

*The workmanship and performance in normal use of the AR-7 are guaranteed for five years from the date of purchase. This guarantee covers parts, repair labour, and freight costs to and from the factory or nearest authorised service station. New packaging, if needed, is also free.*

Tested by \_\_\_\_\_

Final inspection by \_\_\_\_\_

**ACOUSTIC RESEARCH  
INTERNATIONAL**

**24 Thorndike Street, Cambridge, Mass. 02141  
High Street, Houghton Regis, Beds., England**



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