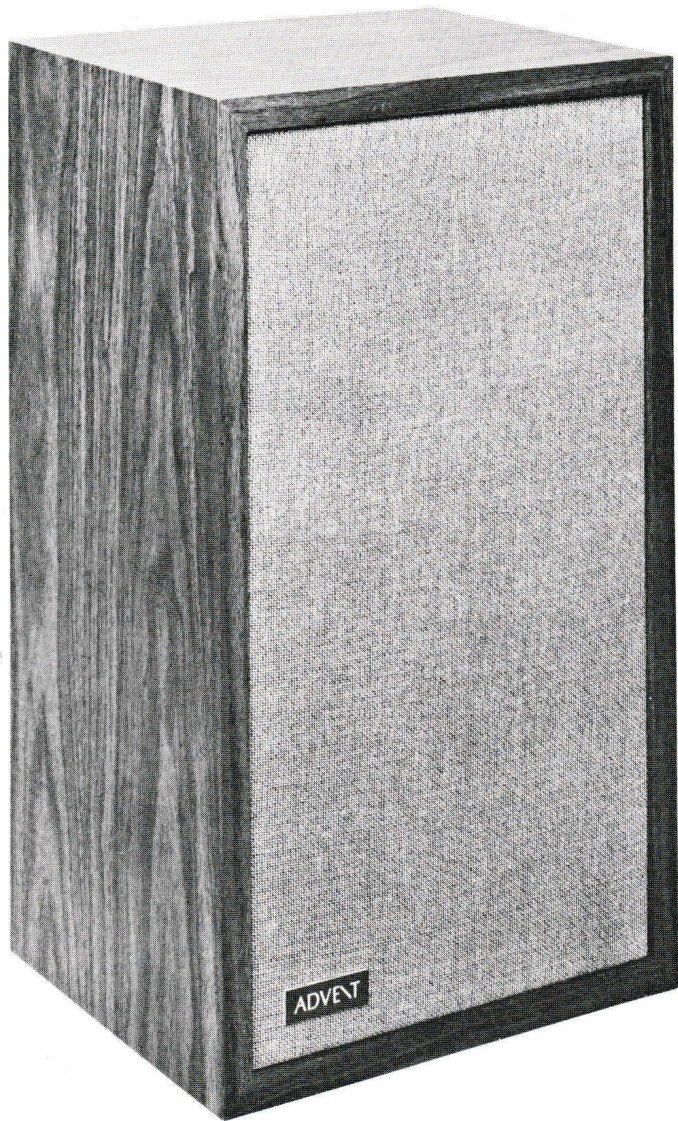


THE ADVENT / 1



For the past several years, the most popular and imitated speaker in the United States has been the Advent Loudspeaker, which, including its newly redesigned format, is approaching the 700,000 mark in sales. Right behind it has been the Smaller Advent Loudspeaker, a speaker we carefully designed to have the same frequency range and much the same overall performance for less money in a smaller cabinet.

The Advent/1 is a new speaker system that replaces the Smaller Advent. It is a redefinition of just how close we can come to the performance of our flagship speaker system in a smaller, less expensive speaker.

The Advent/1 has $2\frac{1}{2}$ dB less response at 30 Hz than its bigger brother. That is the only difference worth quantifying. Its overall sound is as close to the New Advent's as any speaker can come to another. Its power-handling capabilities are the same, and its efficiency is high enough to allow it to be well driven by low-power amplifiers and receivers.

We feel that the performance-per-dollar (and per-cubic-foot) of the Advent/1 is unsurpassed by anything we or anyone else can offer in a speaker.

Our Approach to Speaker Design.

With almost twenty years' worth of experience in the design and manufacture of fine speakers (speakers good enough to have persisted in people's sound systems, seldom appearing on the used-speaker market), we have learned these basic facts:

- It is not difficult or esoteric to design an excellent speaker. Any of several design techniques will do the job, and no "breakthroughs" or new materials are needed to produce a speaker that does full justice to music.

The trick in speaker design — as in *all* design — is to do just enough to make something right for its purpose, without cutting any corners. The customer shouldn't have to pay for needlessly elaborate engineering or complex "solutions" to non-existent problems.

- For home listening, two-way speaker design is the best, least problematical way to cover the audible frequency range. It is the closest practical alternative to the theoretical ideal of a *single* speaker, avoiding interference and crossover-effect problems common in three-and-more-way design. More complex systems aren't necessary for full-range coverage, and they don't have subtler characteristics than two-way designs.

- Speakers can and should be designed to sound good not just under theoretically "ideal" or laboratory conditions, or with the best program material, but under the wide range of conditions that exist in real listening situations in people's homes — on a very wide range of musical material recorded in very different ways. Speakers designed to fulfill a single theoretical aim, such as "equal energy response," simply don't sound good much of the time under real conditions of use. What we have found best is to combine very wide-range, relatively smooth response (no sudden peaks or dips) with a frequency balance — octave to octave across the audible range — that sounds convincing with the widest variety of recording techniques.

The Basics of the Advent/1.

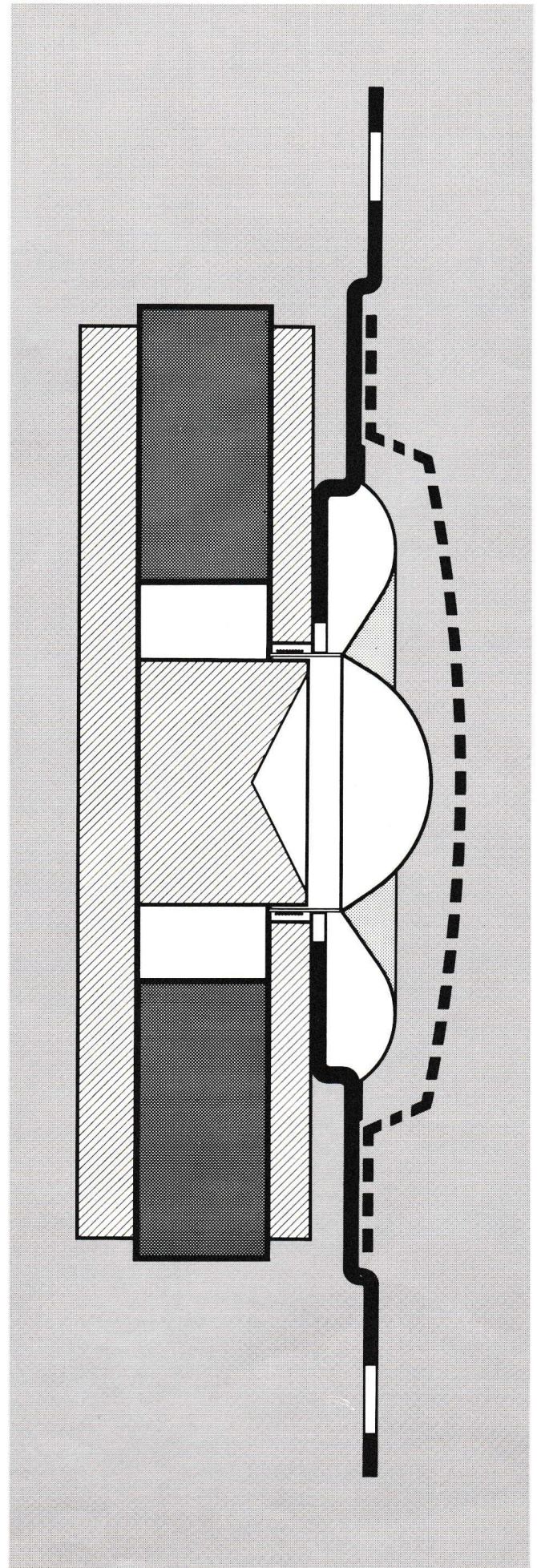
The Advent/1 is a two-way, two-speaker system that combines an acoustic-suspension low-frequency driver with a small, high-dispersion, direct-radiator tweeter. The crossover is an LCR type that keeps low frequencies out of the tweeter and allows the woofer to roll off smoothly on its own without an abrupt cut-off. (Crossovers that employ an abrupt electrical cut-off to compensate for irregularities at the upper end of a woofer's range tend to have phase irregularities that produce a "hole in the middle" and other audible problems.)

The acoustic-suspension woofer replaces the stiffness of mechanical cone suspensions with the controlled acoustic stiffness of the air sealed inside a deliberately small enclosure. This "air spring" is much more uniform in its action than the best mechanical suspension, and it allows the woofer to move long distances to push and pull air for deep bass response without distortion.

The acoustic-suspension design also has the advantage of predictable, reliable behavior, with no side effects. There are designs that permit greater sound output for a given amplifier power but all of them have significant drawbacks. Horn enclosures have to be *very* big (and very expensive) for deep bass response, and sound reflected back into the mouth of the horn from a listening room can (and usually does) cause severe peaks and dips in mid-bass and low-bass response. Standard vented enclosures have also been big and expensive, and have tended toward boomy mid-bass which is why they have virtually disappeared from the marketplace. And the latest generation of smaller vented enclosures (along the lines originally suggested by A. N. Thiele) are problematical for true low-bass response because their cones are not "loaded" (controlled) below their bass cut-off point. This means that subsonic disturbances such as record-warp pulses, rumble, and feedback cause cone "bobble" that seriously interferes with response in the audible mid-range.

In the Advent/1, we have balanced the four interrelated factors of acoustic-suspension design – the mass of the moving system, magnet strength, enclosure volume, and cone size – to produce extended bass in a small enclosure without a great sacrifice of efficiency. We have kept the ability (found in the large New Advent Loudspeaker) to reach into the very lowest octave of bass response. But by giving up $2\frac{1}{2}$ dB of output at the very bottom of the range, we have kept efficiency to the level needed to allow the Advent/1 to be driven well by a low-power amplifier or receiver.

To accomplish that, the Advent/1 uses the same woofer employed in its bigger brother. This also helps achieve power handling fully equal to that of the bigger speaker.



We believe that the 2½ dB trade-off in bottom bass response will be inaudible with the great majority of program material, giving up none of the solidity needed for a convincing bass foundation for music.

The high-frequency driver is also identical to that of the New Advent. And its unique advantages are also worth spelling out.

In a two-way system, a good tweeter has to be light and small enough to make the rapid movements needed for accurate high-end response. It also has to handle power effectively down into the mid-range region. And it has to radiate high-frequency energy efficiently over a wide listening area. (This last requirement of good dispersion isn't just to make highs audible at various seating locations in a room, but to keep highs in proper overall balance with the more easily spread mid-range frequencies, which reflect back from room surfaces. If the proportion of highs to mid-range in the overall sound-spread falls off, the excess mid-range can produce sound that is dull or lifeless or "nasal.")

The design of the tweeter used in the Advent/1 allows it to combine small size, efficiency, power-handling and excellent dispersion. The unique rolled-ring diaphragm (see our illustration) serves as its own free-moving suspension so that it can move more effectively down into the mid-range region without resistance and without reflections of energy back along the diaphragm. The center dome area is driven by the voice coil at its periphery, so that (as in conventional small-dome designs) no part of its diaphragm is far from the driving surface — which prevents flexing and "breakup." But the design also allows the voice coil to radiate energy outward into the rolled ring. The inner half of the ring becomes a provider of extra radiating area for excellent efficiency, and the outer half serves as a suspension that allows natural roll-off with a minimum of reflections. The radiating inner half of the ring is no further from the voice coil than is the center dome section.

The tweeter's voice coil is suspended in ferro-fluid, an expensive but well-worthwhile innovation that we think will be used increasingly in speaker design. This "magnetic fluid" suspension, plus the use of anodized aluminum for the voice-coil bobbin, allows very effective heat dissipation to let the tweeter radiate very high levels without thermal damage. And the ferro-fluid also provides added mechanical damping action that simplifies the design of the crossover network between woofer and tweeter and makes it easier for an amplifier to drive the overall system.

The design of the Advent/1's tweeter, originally conceived for our most expensive speaker, overcomes the limitations we see in dome tweeters and

conventionally suspended tweeter cones. We think it is an unbeatable design for superb high-frequency performance at the lowest cost to the buyer.

Octave-To-Octave Balance.

Although there are no visible parts to point to, a vital contributor to the Advent/1's sound quality is the octave-to-octave tonal balance designed into the system (primarily through its crossover network) to make it sound convincing with the widest range of music and recordings. This is a crucial part of designing a speaker for real-world enjoyment rather than for theoretical factors or easily marketed "showroom sound" of one kind or another. A speaker has to be lived with, day after day, with many different kinds of music and recording or broadcast techniques.

The musical balance we painstakingly choose for Advent speakers — and carefully maintain in speaker to speaker off the production line — not only makes them sound "right" initially to so many people, but also helps account for the scarcity of Advents on the used-speaker market. They go on sounding right over years of listening.

Just How Good Is The Advent/1?

We think the Advent/1 is so close to the abstract "best" that can be done in speaker design that most of us involved with speakers at Advent could use it indefinitely with no sense of anything missing in its performance.

We can see reasons for some people to value the added 2½ dB of bottom bass offered by the Advent/1's bigger brother — if they listen consistently to the rare material, such as pipe organ music, that contains significant energy under 40 Hz. But since the Advent/1 goes low enough to do justice to the 43 Hz low E on a rock-bass guitar (the lowest frequency most people will ever want to reproduce), and since its high end is the same as the best we have to offer, we think the Advent/1's sound is right for virtually any purpose.

Inexpensive enough (and efficient enough) to be a part of a very reasonably priced stereo system, and small enough to be used in virtually any living room, the Advent/1 is an ideal product for most people who want a maximum of music in their lives.

Specifications

Crossover Frequency

1500 Hz

Impedance

8 ohms nominal

System Resonance

52 Hz

Suggested Minimum
Amplifier Power

15 watts per channel

Cabinet Dimensions

559 x 337 x 235 mm deep
22 x 13¼ x 9¼" deep

Weight

13.2 kg
29 lbs.

Cabinet Construction

With wood finish, the Advent/1's cabinet is constructed of non-resonant particle board finished in genuine walnut veneer.

With vinyl finish, the Advent/1's cabinet is constructed of non-resonant particle board finished in walnut-grained vinyl.

Quality at Advent

The performance of any high fidelity product depends at least as much on care of manufacture as on design. We go to exceptional lengths at Advent to make sure that our loudspeakers leave the factory sounding the way they should.

Every driver of every Advent speaker system is tested before being installed in a cabinet. Then the response on every finished speaker system is tested across the frequency range. Small deviations from the desired response bring rejection of the system.

The drivers used in the Advent/1 are manufactured by Advent, not bought from outside suppliers (as most speakers from most manufacturers are). This not only helps us to do what we want to do in the design of Advent speakers (in ways that often wouldn't be possible with standard "stock" parts), but also helps maintain the exceptional uniformity in sound quality of speaker to speaker off the production line.

ADVENT

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