The Sound

Components in Review

Infinity Servo-Statik Ia

Manufacturer: Infinity Systems, Inc., 7930 Deering Avenue, Canoga Park, California 91304. **Source:** Manufacturer's loan. **Cost:** $4,000.

The Infinity Servo-Statik Ia is both an intriguing and exasperating product. It is intriguing in its design concepts. It is exasperating to those who care about the translation of those concepts into a nuts-and-bolts sort of pragmatic reality (i.e., how it is assembled, constructed, and the like).

Sonically, it stands above and slightly beyond any commercially manufactured loudspeaker system produced in this country. Once this is said, one again faces the intriguing-exasperating syndrome: For the Ia is so good in most parts of the frequency range that its flaws are all the more apparent—and, if not exasperating, then, always noticeable.

Its design concepts are fairly well known, and I'll try not to linger over them unduly.

The Servo-Statik system includes two rather large electrostatic dipole radiators. These consist of (per channel): seven RTR electrostatic tweeters, designed to operate from 2,000 Hz up; and, six Infinity-manufactured mid-range panels, operating from 60 to 2,000 Hz. (There are separate inputs for the tweeter and mid-range panels and these feed a transformer box, complete with its own AC line cord.) Below 60 Hz, Infinity uses one 18-inch Cerwin-Vega woofer (manufactured to Infinity's specifications), driven by an Infinity amplifier (using the servo principle to correct for deviations in the woofer's cone motions) housed in an electronic cross-over unit. The consumer must supply stereo amplifiers for both the mid-range and tweeter panels.

At $4,000, the Infinity system is not a piddling investment. And though cost may not be germane in describing any unit's ultimate sonic characteristics, it certainly should be in considering the operating reliability of any component.

And while our version of the Servo is a very early one, virtually hand-built, and though current production units probably vary somewhat, we cannot help but wonder if we were reviewing (and you will buying) what amounts to a "finished product" or whether the Infinity is something else, more like a work-of-art in progress.

In any event, since the Infinity system first arrived, now more than eight months ago, we have been beset by failures in virtually every part of the system. The cross-over units themselves have undergone substantial modifications (to improve the bass; to improve the middle and high frequencies); nearly all of the mid-range panels have failed; the tweeter transformer failed, taking one of the nearly indestructible RTR units along with it. To be sure, there has been an explanation for nearly everything that has gone wrong. The mid-range panels (as the manufacturer will no doubt explain) were potentially defective from the outset and took only a high-powered amplifier (such as Infinity's own switching amp)

to activate their capacity for suicide (and arcing, another form of suicide for these panels). I still have no idea what went wrong with the transformer and even less idea why at least two cross-over units—units that originally sounded all right — developed considerable sonic problems.

We have, accordingly, asked for a production sample of the electrostatic panels, which we intend to evaluate on a long-term basis, if only to determine whether or not to remove our "c" (conditional) rating, and to revise our thoughts on the question of reliability.

One thing is clear, though. Infinity, like Audio Research and IMF, apparently doesn't stop improving these things. They are undergoing a constant evolution—although presumably the evolution of the speakers is, at this point, a kind of refining (rather than basic overhauling) process. In terms of pure craftsmanship, we do not find the Infinitys to be especially well built. (Two points mentioned by HP's technical consultant: there were capacitors in series on the circuit board in the transformer unit; the electrical wires delivering voltage to the tweeters, the consultant thinks, are not sufficient unto the voltages they must deliver.) Possibly these, and other curiosities, are rectified in the production model of the speaker. Possibly it is this sort of inattentiveness to the felicities of the manufacturing process that gives the company such difficulties in the reliability department.

And though a working pair of Servos is not the perfect speaker system, the Ia can lay claim to considerable sonic distinctions.

The reproduction of the high frequencies (above about 4,000 Hz) is, on the system, nearly ideal. Putting aside, for the moment, questions of coloration and radiation patterns, the highs on the Servo system are about as delicate, airy, and "right" as you're likely to hear—in the here and now. Very subtle overtones that lie up the frequency scale are reproduced correctly (for once), which allows one to make extremely refined distinctions about which instruments are playing what parts during exceedingly complex and demanding musical passages. This is particularly so above 8,000 Hz, where the tweeters really do seem to come into their own. Anyone who doesn't believe there is a "Shibata" sound to styli employing the Shibata shape or anyone who doesn't believe that even the least sophisticated listener can distinguish between amplifiers is clearly going to have his mind bent. (I say that having taken the precautions necessary to insure that we are not listening to volume differences, impedance difficulties, and the 100 other factors our critics would have you believe we are blissfully unaware of.)

In the middle frequencies (again, with exceptions to be noted later), the speakers are absolutely astonishing in their lack of an identifiable coloration. Certainly there is no electrostatic sound here. In fact, I have begun to relent on my long-standing distrust of the "electrostatic sound"—these speakers have convinced me that, prior to this, I was hearing design and manufacturing problems in electrostatics.

And, finally, below 50 Hz, the Infinity sub-woofer system really has to be heard (or felt) to be properly appreciated. The woofer has incredible definition below 50 cycles. Just one listening session, and you'll realize how much very deep bass there is on records these days (though usually not on American discs) and just how often that very deep bass substantially contributes to the overall musical impact. It is, in fact, at its deepest registers that the Infinity woofer gives one of its most startling illusions of reality.

Those of you who are familiar with the sound of string bass, the nine-foot concert bass drum, and the lowest organ pedal notes in a good hall (like Carnegie) will know how these extremely low notes often blossom forth and at volumes that are nearly always surprising. The Infinity catches this effect and reproduces it.

The overall subjective effect of this system is that it is extraordinarily smooth, with good-to-excellent definition, and very low coloration. In fact, with the best program material, the speakers commercially available have an almost magical transparency. You get the feeling you can hear everything.

There is, however, room for improvement.

The two major problems with this system, as far as we can determine, are these: (1) There is a small lack of air

and openness in the mid-range. It is not a serious failing and it is not a serious failing because the Infinity mid-range is (subjectively) so much lower in distortion and coloration than other mid-range units that it is infinitely preferable to listen to for long periods of time. What I am trying to suggest here is a not obvious sort of phenomenon, it is rather something like a lack of "blossom" on the sound which tends to make the Infinitys—despite their size and dipolar radiation pattern—sound somewhat less spectacular than a full-sized orchestra playing for all it is worth. Perhaps, the phrase should be a little less "big" than a full-size orchestra, etc.

(2) The mid-bass reproduction is considerably less detailed than—say—that of the Magneplanars. I suspect this is because the woofer is not really terribly happy when it is called upon to reproduce frequencies above 50, though possibly a more powerful bass amplifier would exercise greater control over the woofer at these frequencies and thus impart greater clarity and definition in this range.

Certainly the fact that the woofer is in a separate enclosure is going to introduce phase problems in the mid-bass area, unless one is exceedingly careful, about placement of that low-frequency unit. And, from our experimentations, it would appear that the mid-range panels are not operating comfortably much below 100 Hz.

We have stressed earlier the absolute necessity for careful placement of dipole radiators. Correctly placed, the Infinitys are capable (with the best associated equipment) of reproducing a nearly awesome front-to-back sense of depth, and the attendant ambience on the recording (if, in fact, there is any). It requires little training to hear multi-miking changes in recorded perspective and to hear even the distance from microphone to performer. (Note: In most rooms, there will be a point—perhaps just inches from all the wrong points—at which the speakers, like headphones, seem to couple to the room, recreating that genuine sense of depth that (it seems) only dipoles can reproduce. If you've made your own tapes, as we have, you will know when you have achieved that correct balance.) The only speaker I know of that reproduces hall ambience more precisely is the Magneplanar Tympani IIIa.

Still, the Infinitys do not overwhelm me with the precision of their stereo imaging. Infinity's Arnold Nudell suggests this is as it should be since one cannot pinpoint instrument location in a good concert hall. I do not exactly agree with this, since I have found that one's ability to localize the position of instruments is a function of how close one sits to the orchestra. Given the majority of modern recordings, with very close microphoning, I think the imaging should be better (as in Dahlquist, or, better yet, as in the Quad electrostatic). Those who know, and who are familiar with the speaker, question Infinity's angling of its tweeter array, suggesting that the two out-rigger tweeters (located at the top of the main units) should be disconnected.

There are a few colorations worth mentioning. JWC allows that he hears one around 7,000 Hz. He isolates it as a certain unnecessary "sheen" on the sound that, even so, makes things sound "glamorous" and certainly preferable to the hardness of most speakers in this area.

There is certainly a "sweetness" about the Infinitys which seems to overcome the deficiencies of many (formerly) troublesome discs. There is a sense (aurally) that the Infinitys soften certain "edges"—particularly the edges prominent in many American recordings. (I might point out that this sweetness occurs with both Infinity and Audio Research electronics. Surface noise isn't particularly bothersome, and tape hiss less objectionable than usual because of the softening effect.

We have tried the full gamut of associated electronics and cartridges with this speaker. We have also experimented with Audio Research crossovers. And several new arms (the Grace, the Jonas Miller modified Rabco SL-8E, the Harman-Kardon Rabco ST-7). For the moment, we would strongly recommend (although these recommendations will probably change) Luxman's new tube amplifier, the 3045, for middle and high frequencies; either the Levinson JC-2 or the Audio Research SP-3a-2 for pre-amplification; and a Sonus (blue) in either the Grace or Jonas Miller arms. With lesser equipment, meaning most solid-

state amps (save Infinity's own), the Servos will be performing less than optimally.

And, last but not least, is the problem of a common woofer for the low to very low frequencies.

Using the Audio Research Tympani IIIa bass panels for comparison's sake, we (me and several listening panels members) were consistently able to detect a collapsing of the breadth and the size of sounds (on honestly recorded orchestral music) when switching back to Infinity's woofer. The effect, aurally, was rather like that one obtains when pinching the air out of the lower part of a balloon. It is noticeable and, to my ears, diminishes slightly the overall sense of realism in the lowest frequencies. But, the loss is mitigated by a quite canny compensatory technique—for the most part, the woofer's detailing (in the lowest octave) and its very impressive sense of "thereness" tends to obliterate the sense of anything missing. (This is particularly so if one has the woofer slightly out of phase with the main speakers—if one does, a sense of depth is actually somewhat enhanced.) So for a loss of "realism," particularly in the mid-bass area and slightly below (say from 100 down through 50 cycles), Infinity has provided a sort of Sensurround low end that otherwise quite nicely compensates for the lack of low end perspective. By comparison, it might be instructive to note that the early Infinity I's were nowhere nearly as successful in solving this problem: First, the cross-over point was too high (100 Hz) and the stereo imaging at the low frequencies was seriously degraded. Second, the bass from the original Servo woofer was, for the most part, decidedly mushy. In the Ia, the lower cross-over point makes for only the slightest sort of deterioration of openness at the bottom end (with little, or no, interference in stereo imaging, or, for the nitpickers, the illusion of stereo imaging) and, as we noted, the low bass (20 to 40 Hz) is quite simply wondrous.[1]

There will be many of you, no doubt, who find that I am being excessively hard on this product. And I certainly know of no way to alleviate my current doubts about Infinity's quality control procedures in manufacturing the Servos unless, of course, the production versions show greater care and attentiveness to detail in the finished product. Perhaps, at this level of excellence in performance, the sort of person who would be attracted to these speakers is also the sort of person who would not mind doing the fine-tuning necessary for correct installation (one shouldn't, if spending $4,000) and who could endure the suspense they provide—namely, waiting to see if they will keep working. There is no repair on the Infinitys that I or DJM could not effect, despite a relative lack of technical accomplishment. For myself, I would think that spending $4,000 for a speaker system should naturally entitle me to a certain degree of dependability.

There is no doubt in my mind, however, that the Infinity Servo-Statik Ia, when working properly, is an exceedingly successful harnessing of the seemingly intractable laws of physics in the service of music itself. These speakers are—first, last, and in between—the product of someone who knows, perhaps intuitively, how to significantly reduce the colorations and distortions common to most speaker systems, and reduce them by a degree that does entitle this system to the coveted state-of-the-art designation.

—HP

Manufacturer's Comment:

It is a seemingly impossible task to adequately answer a review which on one hand offers such high accolades and on the other hand is so extremely damning. Furthermore, it has the implication that an individual who purchases

[1] I do not think I have sufficiently stressed the point about the bass. This woofer is capable of reproducing a 16-cycle note with no (audible) diminution in response or increase in doubling. I can, and have, quite literally rocked the house.

the Servo-Statik Ia is one who demands only the finest that the world has to offer yet and at the same time must be so mentally ill that he should be committed.

We should like to offer our point of view of this apparent dichotomy without sounding overly defensive.

Firstly, we should like to say that we agree with most of the audio commentary. The two points that we disagree with may not lie with the speaker or the reviewer, but the room. There is no doubt that the SS1A operates most exactly in a larger room than was available to HP. We have discovered that certain parameters, namely, the mid-bass tightness and detail, the stereo imaging and ambience, always are produced more satisfyingly in larger vs smaller rooms (25'x20' vs 18'x 14'). The SS1A seems more like large headphones in a smaller room; seemingly, the waves do not have a proper chance to develop and produce sound as completely homogeneous as is possible in larger rooms. Incidentally, disconnecting the "out-rigger" tweeters produces other deleterious effects and destroys some of the high frequency quality which HP so enjoys. Those who question these "tweeters" should try to disconnect them and **then** comment. It was Aristotle who used the hypothesis technique, commenting fully on a theory without any experimentation. In fact, a simple experiment at that time would have shown him that some of his ideas were, in fact, incorrect.

Secondly, the small point about the lack of midrange "bloom" is correct in our view. However, we have found that the SSIA is **so revealing** in this critical range that the better the preamps, amplifiers and cartridges, the more the midrange begins to achieve this realistic "bloom." Our Class D amplifier, for example, gives the SSIA midrange the most realistic quality.

The major point we should like to raise is that the sample sent to HP was, as he mentioned, a pre-production prototype. As such it contained very few of the subsequent refinements that the production SSIA contains. I should not like to dwell on this point but the wiring, high voltage supplies, etc., used in the SSIA are all extremely conservative in their respective ratings. In fact, the only problem that we have had in the production version is the midrange modules. This problem is inexorably tied to the enormous increase in petroleum prices and has resulted in subtle but significant deterioration of our supplied laminate from which we construct the midrange module. New techniques had to be formulated and we are pleased to announce that the problem has been solved.[1]

In conclusion, we should like to make it known that for Infinity the SSIA is a labor of love and a losing proposition on our profit and loss statement (even at $4,000 retail). It is only our love for music and dogged dedication to the state-of-the-art which drives us on to create these products. Some of these techniques that seemingly "harness the intractable laws of physics" are extremely difficult to embody in a finished product. We sincerely hope we have not severely inconvenienced any of our customers and we are also dedicated to quickly repairing any mishaps.

Finally, we would like to comment favorably on the professionalism both in audio commentary and journalistic expertise contained in this review.

Arnold Nudell
President
Infinity Systems, Inc.

PHD Comments:

My Servos were early production units, not prototypes like HP's. They were originally delivered in September and, after two days of use, most of the mid-range panels failed. I will not comment on that listening experience since it appears that it would be invalid. It is interesting to note that some dealers reported to us that they, too, had experienced major, if not massive, mid-range panel failures on the very early SSIA systems. My production units were reshipped with new panels in late November. Aside from the defective mid-range panels, I have had no failures with my production level SS1A, but only time will tell whether or not they maintain this level of reliability.

HP talked about the reliability and the sound that might be indigenous to an electrostatic device, and while I'm not

[1]Despite the manufacturer's assurances his problems with the mid-ranges have been solved, we have learned (as of 3/9) that this is far from true.

sure that an electrostatic properly designed and produced has any sound of its own, I am sure of two things—the first is that state-of-the-art speaker systems exhibit less than state-of-the-art reliability and the second is that they are very difficult to ship around without damage. If one intends to purchase a pair of Infinity SSIA's, or for that matter, a pair of Dayton-Wright Mark III's, my recommendation is that they be purchased from a local dealer, one whom you trust to stand behind the product. It's not that the manufacturer does not stand behind the product, even though some appear to do a rather shabby job of it (Infinity deserves special mention for outstanding customer service. They are, we are told, always very courteous and prompt in honoring parts or repair requests.), but the dealer can buffer a tremendous amount of problems and corrections to those problems for you. Neither the Dayton-Wright Mark III's nor the SSIA's appear to meet the extraordinary demands of intercontinental shipping.

The Dayton-Wright Mark III's packing is almost a joke. The Dayton-Wright's are placed in a double cardboard box and the speaker sits on four thin, highly fragile styrofoam elements; elements which are usually crushed and destroyed by the time the speaker system arrives. The SSIA packing appears to have been given much more attention but it still falls short in protecting the speaker system from rough handling. We have seen a pair of SSIA's arrive here in Raleigh in flawless condition. The cartons looked almost new. We have also seen two pair of Servos arrive with a significant amount of damage as a result of rough handling during shipment. The entire Servo panel can shake loose within its shipping container quite easily as it's only held in place by a few pieces of cardboard. Enough said for shipping.

Hp indicates that above 4K Hertz the Servos are nearly ideal; maybe they are ideal when compared with other currently available state-of-the-art speaker systems, but not necessarily when they are compared to live sound. Infinity has gone to great efforts to increase dispersion by angling each of the seven RTR tweeters in a somewhat different direction. This scheme has helped significantly in providing a more dispersive array and eliminating the hot spots that normally exist with a small electrostatic radiator, but it has also softened (or blurred) the top end ever so slightly. All one need do to ascertain this is to listen directly to any one of the electrostatic tweeters while blocking out the sound of the others and then listen to them as an array in order to discern the slight difference. Obviously, there is a compromise involved here and we agree that Infinity has chosen the lesser of the two evils (beaming and low dispersion versus wider dispersion and a smoother sound).

As of this writing, I am not completely happy with the sound of the Servo Ia's mid-range in my listening room. While it is very difficult to discern what is wrong, since there is extremely low coloration in the mid-range, I quite often find myself wanting a more dynamic, alive mid-sound. Maybe the Dayton-Wrights spoiled me, or maybe I am, for the first time, listening to the true qualities of an XLM. Many moving coil cartridges, even though they cause ultimate headaches (because they are too bright) do open up the mid-range to the point that it gets closer to what I would describe as "perfect." In this same regard, we also suspect that our Levinson JC-2 may be contributing some of this constriction. Our tests will continue and further thoughts will describe ultimate conclusions.

From time to time we have felt that the SSIA was oppressive and slightly overpowering. I theorized that the cause of this oppression might not be audible but rather visual (Psycho-Acoustics). In order to test the theory a small, extremely transparent flat cloth panel was drawn across the equipment area of the listening room (this panel serves to hide the enormous amount of equipment that is normally within the equipment area so the room looks habitable) and both I and the listening panel members who felt the oppression were immediately relieved. The sound of the Servos seemed to spread a little bit wider, go a little bit deeper, and instruments appeared to be placed in a more natural perspective. The only change made was

[1]Subsequent tests proved the JC-2 was not at fault.

to visually eliminate two large black screens bearing down on us. Both HP and I have noted similar phenomena when listening to the Dahlquists after converting their grille cloths to a white linen rather than the black that comes as standard equipment. The Servo, with its standard black foam grille cloth, is a strikingly beautiful piece of equipment, but possibly Infinity might want to consider using some white foam, especially when the speaker is used in smaller rooms, to eliminate this psycho acoustic phenomena. (One may verify this phenomena by simply closing one's eyes while listening to the Servo Ia's.) We also recommend that the Servo's front grille cloth be removed to open up the mid-range a slight bit more.

Infinity has recently shifted the bass cross-over from 70 to 60 Hertz. I noted a marked improvement when this change was made. Prior to the modification, the mid-bass had a slightly fat, sometimes blurred quality in the 70 to 100 Hertz region. The bass response of the latest SSIA system is the most exciting and most accurate that is commercially available in a full-range system. It is not quite as gutsy as my reference 24-inch Hartley (which is installed in the floor). The Hartley, of course, is not in a cabinet, so things like cavity resonance and loading are not a problem. The Hartley has the ability, in my rather small 15 x 18 room, to shake one's entire frame in the same manner that a large church organ excites everything and everyone, when the stops get pulled at 32 Hertz. The Servo comes close but it's not the same. Obviously, the Servo woofer, like any other good speaker, is room sensitive, but in the case of the Servo commode its separation from the mid-range panels is a distinct advantage. I intend to continue experimenting the various room positions to see if I can duplicate the "Hartley sound" but HP's review, which indicates that his entire home is set to shaking should be enough to illustrate what the Infinity is capable of in a different room.

In my room there are only one or two good listening positions and that is about 9 feet away from and at the dead center of the two screens with the screens spread approximately 6 feet apart. Sitting in any other position causes one to hear mostly one channel, whichever is directly in line. When one is seated in one of the two choice seats, the overall sound provided by this speaker system is **phenomenal.** The system, even when reflecting from a dead rear wall, develops an image with width and depth equivalent to that of any symphony orchestra. When the speakers are placed on a live wall as Infinity recommends, the image does drop back at times to what appears to be a depth of 40 or 50 feet, but the upper mid-range becomes too aggressive and the tweeter portion of the speakers is more identifiable as an individual point source. On the live wall the system sounds markedly brighter, so my choice to date has been to position the speakers about 4 feet away from a relatively dead rear wall.

There are other minor problems with the Servostatic system; its present bass amplifier has rather loud 60 Hertz hum to it which Infinity claims will be fixed shortly, the system pops and snaps every time it is turned on and off—this is more likely due to the lack of a cross-over isolation relay similar to the one that **is** provided in the bass amp. (This would protect the power amps and speakers from **both** crossover and pre-amp turn-on thumps.)

The Dual 76A has been used as a mid-range and tweeter amplifier for short periods of time and is, of course, entirely satisfactory. We will cover the difference between the D76A and Infinity's new switching amp in Issue #8. At the present, I can tell you this, the Dual 76A is smoother on the top end of the Servos but is not as open or as detailed as is the switching amp. My suggestion is that one should listen to both and decide which is more to one's personal taste. (I favor the switching amp.) Two other amplifiers have so far proven themselves to be excellent matches for the Servostatic mid-range panels and these amplifiers are the Stax DA150 and the Luxman M4000.

Infinity President Arnie Nudell sent me a few of his company's imported Japanese jazz records and their 15 ips ½-track master tapes[1] to listen to; these discs and tapes on the Audio Lab label almost blew me away. They have to be heard to be believed, especially

[1]Both the tapes and discs are sold by Infinity dealers.

on a system as neutral and accurate as the Servo Ia. In sum, there is not a speaker system alive that can touch the Servostatic for top to bottom range, balance and realism.

—PHD